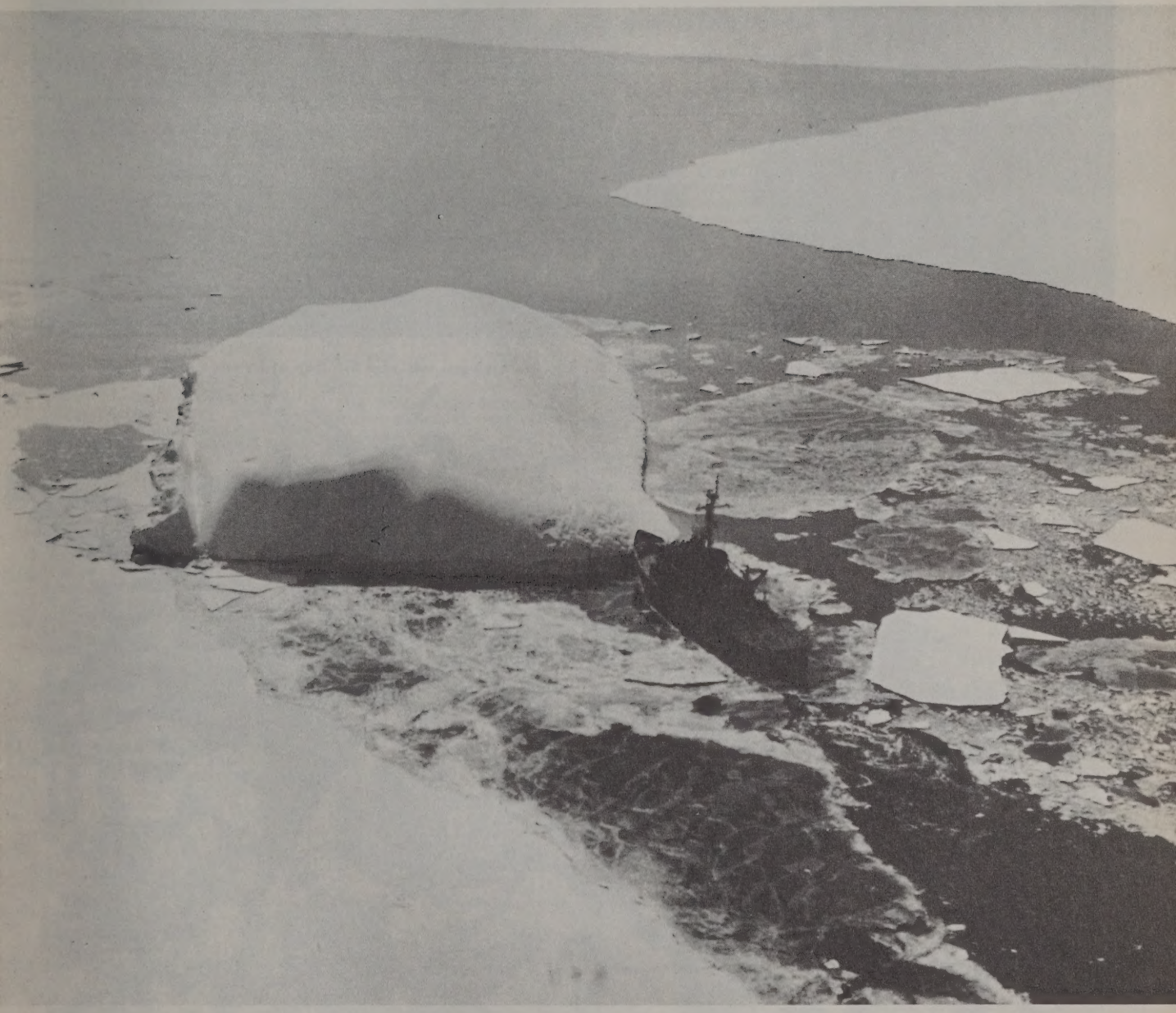
THE POLAR TIMES



A 1½ million-ton iceberg, about 500 feet long, 200 feet wide and towering 100 feet above the water, recently drifted into the man-made shipping channel at McMurdo Sound in the Antarctic. So the Navy's 10,000-horsepower icebreaker Atka began pushing and, in two hours, moved it back to sea.

Official U. S. Navy photo

The seas surrounding Antarctica teem with life. In the summer sunrise, this biologist sets wire fish trap at icy edge of the sea.

THE CREW OF THE MERCY FLIGHT TO THE ANTARCTIC.—A photograph taken just before the departure of the United States Navy s Hercules aircraft from Christchurch airport Kneeling, third from left, is Lieutenant R. V. Mayer, U.S.N., captain of the plane. The senior officer on the flight, Commander D. Balish, is standing on the left.

The Polar Times

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No. 58. JUNE 1964.

Navy Plane Crew Braves Antarctic To Help a Seabee

CHRISTCHURCH, New Zealand, June 26 (UPI)—A ski-equipped United States Navy transport plane made the first midwinter landing in Aantarctic history today to remove an injured sailor from the United States base at McMurdo Sound.

The Hercules turboprop transport was flown to Antarctica from Quonset Point, R. I., 12,-522 miles, to pick up Bethel McMullen, a builder first class in the Seabees who broke his back in a fall. The builder, of Port Hueneme, Calif., is the son of Mrs. Ruby Salz of Stamford, Conn.

The plane, piloted by Lieut. Comdr. Robert D. Mayer of North Kingston, R. I., carried a crew of 15, including a four-man medical team it picked up in Washington.

Burning barrels of fuel oil marked out the frozen runway for the plane. Commander Mayer brought the plane down without difficulty in the darkness.

A second Hercules transport plane accompanied Commodore Mayer's craft on the flight, but did not make the landing. It circled overhead while the other plane picked up the injured Seabee, who was taken to a hospital at Christchurch.

Mr. McMullen, member of a Seabee (construction battalion) unit, was fire marshal for the installation at McMurdo. He fell in the firehouse, apparently from the second floor to the first floor, and incurred a fractured spine and head injuries. He was reported to be paralyzed in the lower part of his body.

The Navy said the landing was made despite midwinter storms and darkness.

The men at McMurdo station had asked Commander Mayer to fly in some fresh eggs to vary their winter diet, but no food could be taken aboard the plane because of its heavy load. It carried only personal mail, a basket of fruit, and two cases of apples given to the Americans by the Salvation Army here.

CHRISTCHURCH, New Zealand, June 27 (UPI)—A ski-rigged United States Navy rescue plane that made the first mid-winter aircraft landing in Antarctic history returned here today with an injured Seabee.

A New Name, Antarctic Peninsula, Goes on Map

Compromise Ends Decades of Bitter Dispute Between the U.S. and Britain

By WALTER SULLIVAN
The New York Times

March 13

In a compromise ending several decades of bitter controversy, what is probably the world's longest peninsula has been renamed.

The United States, in consultation with British Commonwealth nations active in Antarctica, has agreed to call the long arm of land reaching from that continent toward South America the Antarctic Peninsula.

For generations American maps have shown it as the Palmer Peninsula, in honor of a young Connecticut sea captain who, in the official American view, was the first to sight the peninsula and, hence, the continent.

The British, who have hotly disputed the claim, have called it Graham Land in honor of Sir James R. G. Graham, first Lord of the Admiralty in the early 19th century.

The British maintain that the peninsula was discovered by Edward Bransfield of the Royal Navy in January, 1820, several months before Captain Palmer's discovery.

The Soviet Union has recently produced documents to support its contention that the first sighting was made a few days before Bransfield's by a Russian expedition on the opposite side of the continent.

On the eve of World War II the dispute between British and American scholars over this question boiled over. Charges of misrepresentation and hints of fraud flew back and forth across the Atlantic.

Even a few months ago the lingering bitterness was such that any compromise seemed beyond reach. However, the emphasis in the Antarctic since the International Geophysical Year of 1957-58 has been on scientific cooperation rather than on national rivalry.

The recently ratified Antarctic Treaty does not dispose of the territorial claims, but in effect, it puts them on ice. All nations active in Antarctica are a party to the treaty, including the Soviet Union.

The Antarctic Peninsula is claimed by Argentina, Britain and Chile. American expeditions have been active there and plans are being drafted to establish an American base on Anvers Island, off the peninsula, late this year. A major feature of this section, Alexander I Island, was discovered by the Russians and named for their Czar.

The Soviet and American Governments do not recognize the claims of any other powers in the region.

To confuse mapmakers further, Argentina and Chile call the peninsula area San Martin Land and O'Higgins Land, respectively.

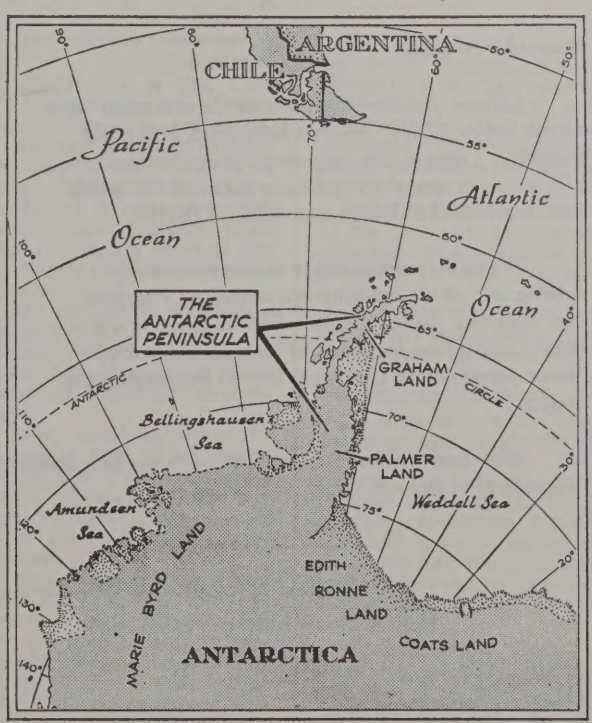
Under the compromise the northern part of the peninsular is to be called Graham Land, the southern part Palmer Land. The arm of land as a whole will be the Antarctic Peninsula, a designation used recently in international scientific meetings to avoid offending any participants.

The renaming decision was made in consultation with Britain and the other English-speaking nations active in Antarctica — Australia and New Zealand. It has been approved by the United States Board on Geographic Names, an agency of the Department of the Interior, and was endorsed a few days ago by Secretary of the Interior Stewart L. Udall.

The British-American controversy reached a climax in 1939 when William Herbert Hobbs, professor of geology at the University of Michigan, published in the Transactions of the American Philosophical Society a monograph that emphatically stated the case for American discovery.

Arthur Robert Hinks, editor of The Geographical Journal in Britain and secretary of the Royal Geographical Society, replied vehemently in a review entitled, "On Some Misrepresentations of Antarctic History."

When the British Antarctic historian, Hugh R. Mill, had the Hobbs monograph bound in hard cover, he ordered a rattlesnake inscribed down the spine of the book. It rested thus in



The New York Times March 13, 1964

COMPROMISE REACHED: Decades of controversy have ended in naming of what is probably the world's longest peninsula. It will be known as the Antarctic Peninsula.

his library until, during the Battle of Britain, he received a food package from Hobbs in America. He then sent the book back to the binders with instructions that a halo be inscribed over the snake's head. The book is now on display at Cambridge University.

In a sense that was a turning point. The British-American dispute simmered down, but the war led to a new crisis. Argentina and Chile sought to take over the peninsula as a southward extension of their territory. The peninsula's mountainous, twisting spine, is, geologically, an extension of the Andes.

Britain countered this with Operation Tabarin, the secret establishment of several small bases on and near the peninsula.

In 1948 Argentina sent two cruisers, six destroyers and a detachment of mountain troops to support establishment of a rival base. British naval units were dispatched to the scene but arrived after the Argentine ships had left.

There were other incidents, including a burst of Argentine gunfire when the British attempted another landing. The United States sought, with little success, to resolve the dispute.

In fact, Anglo-American relations were again strained when Finn Ronne led an American expedition back to Stonington Island, near the southern end of the peninsula. The island, named for Palmer's home port, had been the site of an American base established in 1940 as a prelude to an official American claim.

Ronne, who had been at the original base, hoisted the American flag when he returned in 1947 and, by arrangement with Washington, opened an American post office. The British, who had set up their own base on the island protested that the post office was on British territory.

A British party under Sir Vivian Fuchs is now based at Stonington Island. One of its members is an exchange scientist from the Soviet Union.

The exploration of recent years has shown the Antarctic Peninsula to reach much farther south than previously supposed. Its southernmost coast is flanked by the Filchner Ice Shelf, a vast apron of floating ice attached to the mainland.

The only other feature of comparable length is the Arabian Peninsula, which is about 1,200 miles long. The Malay and Scandinavian peninsulas are less than 1,000 miles in length. The precise length of the Antarctic Peninsula is still uncertain.

There is evidence that if the Antarctic ice melted and the continesnt resumed its pre-Ice Age level the peninsular might be a long, S-shaped island, rather than attached to the mainland.

The Polar Times

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AUGUST HOWARD, Editor

THE POLAR TIMES highly recommends "The Polar Record," published by the Scott Polar Research Institute, Cambridge, England.

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Membership dues are one dollar a year, which entitles members to receive THE POLAR TIMES twice a year.

Back issues are 50 cents each.

Plaque For Squadron

(N.Z. Press Association)

WELLINGTON, June 26.

A commemorative plaque will be presented to the VX-6 squadron of the United States Navy to mark the first winter contact with the Antarctic continent.

The New Zealand Antarctic Society hoped to present the crew of the aircraft with the plaque before it left for America, a spokesman for the society said.

U.S. to Study Big Area In Antarctica

By Reuters

Wellington, N.Z.

The United States plans to send a fact-finding team into a million-square-mile unexplored area of Queen Maud Land in Antarctica, Dr. T. O. Jones, head of the American Antarctic program of the National Science Foundation, has said here.

He said the final decision on the expedition would not be made for several months and the plan might be withdrawn if in the process it got too tough physically or financially.

Dr. Jones said the earliest the expedition could be launched would be next December.

Dr. Jones said the expedition was planned to start at the South Pole and finish near the Roi Badouin, the Belgian Antarctic base on Princess Ragnhild coast, after a traverse of 3,750 miles.

It was planned to carry out scientific investigation in glaciology, seismology, magnetics, and meteorology, he said.

Dr. John Nef Weds Mrs. E. S. Stefansson

The New York Times

WASHINGTON, April 21—Mrs. Evelyn Schwartz Stefansson, widow of Vilhjalmur Stefansson, the Arctic explorer, was married today by Dr. John Ulric Nef, the historian, by District Judge Luther W. Youngdahl in his chambers.

Mrs. Nef, the daughter of the late Mr. and Mrs. Jeno Schwartz of New York, is an author and lecturer on polar studies and librarian of the Stefansson Collection at Dartmouth College. She has been on leave to serve as administrative officer of the American Sociological Association.

Dr. Nef, son of the late Mr. and Mrs. John Ulric Nef of Housatonic, N. Y., graduated from Harvard and received a doctorate from the Robert Brookings Graduate School here. He is the author of several books on economic history and founder of the Center for Human Understanding and the Committee on Social Thought, both at the University of Chicago. His first wife is the late Mrs. Elinor Castle Nef.

CARDINAL'S RESIDENCE
452 MADISON AVENUE
NEW YORK, N.Y. 10022

February 10th, 1964

Dear Mr. Howard:

I thank you for your note with the current issue of the "Polar Times" which I have read with great interest. I appreciate very much your kindness in placing in it one of the pictures taken at the South Pole with Admiral Reedy and Admiral Dreith.

It was an unforgettable experience and a moving one as we stood by the American Flag and also when we visited Captain Scott's hut. It was a great consolation for me to offer Mass for United States personnel on Christmas Day at the South Pole Station.

With best wishes for your work with the Boy Scouts and with kind regards, I am

Very sincerely yours,

F. Cardinal Spellman
Archbishop of New York

Mr. August Howard,
American Polar Society,
98-20 62nd Drive,
Apt. 7H,
Rego Park 74, N.Y.

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U.S. TEAM INSPECTS SOVIET POLAR BASES

WASHINGTON, Jan. 21 (UPI) —The United States has successfully conducted the first Western inspections of Soviet scientific bases in the Antarctic to insure that there are no military or nuclear activities there, United States officials reported today.

It was the first exercise of the right to unilateral inspection of Soviet Antarctic stations under a 12-power treaty, signed in 1959, that banned military activities or nuclear explosions in the Antarctic.

A team of United States observers visited Russia's Vostok station, some 900 miles from the South Pole, on Jan. 11 and inspected Russia's Myrny scientific base on the Antarctic coast Jan. 15, officials said.

The team also inspected New Zealand's Scott Station Jan. 9 and made an overflight inspection of the French Dumont-D'Urville installation Jan. 10. The French base was the only one not visited on the ground.

The Antarctic treaty, which went into effect June 23, 1961, also prohibited storage of nuclear weapons and nuclear waste disposal on the continent. The United States team was equipped to check for any violations of all these provisions and also on conservation measures involving seals and other wildlife.

Sailors in Antarctic Reduce With Exercises, Not Diets

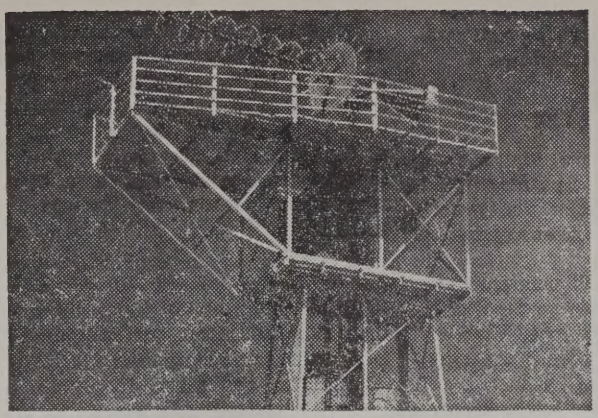
CHRISTCHURCH, New Zealand, (Reuters) — According to United States Navy Antarctic headquarters here, authorities at McMurdo Station are encouraging personnel to reduce, despite increasing difficulties such as the high quality and great quantity of the food provided by the station galley.

Success is being achieved, however, as shown recently when twenty servicemen weighed in showing a loss of 114 pounds among them.

Gymnastic facilities are being used, rather than dieting. The object of the campaign is to achieve physical fitness and standard weights.

Antarctic Exchange Set

BRUSSELS. June 14 (AP)— Antarctic Treaty signers, in consecutive sessions ending here this weekend, approved recommendations for exchanging information on plane landing facilities and unoccupied refuges and supply depots, protection of flora and fauna and coordination of telecommunications. The United States and the Soviet Union were among the countries represented.



This antenna was built in New Zealand recently to receive weather pictures from the Tiros satellite. The data will help forecasters plot conditions between New Zealand and the Antarctic for planes supplying the U.S. base on the continent.

HELP FROM TIROS—

Few weather forecasters have a more difficult job than those who must predict conditions along the 2,300-mile route between New Zealand and the Antarctic. Lying across stormy and often ice-filled seas, the route is flown by planes supplying the American stations on that continent.

To aid the weather men a special receiver has been installed in Christchurch, N. Z., to receive information directly from the Tiros satellite, launched last December from Wallops Island, Va. The equipment, mounted atop a 45-foot tower, receives pictures of cloud patterns over the route.

South Pole Scientists Study Deep-Diving Seal

By United Press International

WASHINGTON.

The fishing is fine 1,500 feet under the ice of McMurdo Sound in Antarctica.

A couple of seafood fanciers recently dived 1,480 feet under McMurdo, site of the largest U. S. research station in the frozen continent. Each came up with a five-foot fish in waters never far from the freezing point.

At 1,480 feet the divers were subjected to a pressure of nearly 700 pounds a square inch. This is about 46 times the surface atmospheric pressure.

Such pressures would be instantly fatal to a human being. Few if any submarines could withstand it. So why talk of farming the seas at such depths in such frigid waters?

Well, if man ever really has to engage in intensive sea farming, perhaps he can get the Weddell seal of Antarctica to do some of his work for him. For reasons still unknown to science, this seal can dive deeper, stay under longer, and do more business down there in the cold than any other mammal.

The Weddell seal, according to the National Science Foundation, is "the world's southernmost mammal and . . . the best adapted to polar conditions." The recently reported dives were the deepest ever recorded for a seal.

Zoologist Gerald Kooyman, of the University of Arizona, attached depth gauges to some Weddell seals. This was not hard to do. The Weddell seals of Antarctica have never known any land enemies. You can go right up to and fraternize with them without triggering any hostility.

Mr. Kooyman provided captive seals with blow holes in the Antarctic ice. They plopped into them and emerged later with the fruits of their seabottom fishing. The only reason they didn't go deeper, Mr. Kooyman figures, is that the water under the McMurdo Sound ice is only so deep.

The longest dive, from the standpoint of time, lasted 28 minutes, a record. In that time, the seal got no fresh air. Science does not know how seals stand the great pressures at the depths they swim to. But Mr. Kooyman believes the need to breathe, and not the pressure, is "the limiting factor."

The Antarctic is a rich source of seafood. It is also a most inhospitable fishing ground. Therefore, understanding of how the Weddell seal makes a go of it is of practical as well as scientific importance.

This knowledge, according to Mr. Kooyman, "might prove useful in management of wildlife, particularly if the sea is ever farmed, and might have medical or even engineering applications."

RUSSIANS COURTEOUS TO ANTARCTIC TEAM

WASHINGTON, Feb. 6 (UPI) —The department who led the first United States inspection of Soviet scientific bases in Antarctica, John C. Guthrie, reported today that the Russians had been "courteous and cooperative."

He said that the Russians had served tea, even producing a fresh lemon, invited the Americans to meals and served bread so palatable that one inspector took a loaf back to a United States Antarctic base to show the cooks "what real bread was like."

Mr. Guthrie is head of the State Department's Office of Soviet Union Affairs.

Two United States teams inspected two Soviet scientific bases last month, acting under the Antarctic Treaty of 1961.

The treaty banned military operations, including nuclear testing and nuclear-waste disposal, in Antarctica. It also provided that any country could inspect any other signatory's Antarctic bases for possible violations.

The United States decided to exercise the right, although it stated it had no evidence of any violations.

Mr. Guthrie declined to tell newsmen whether the inspectors found any signs of violations. But indications were that none was found.

Climbers Plan Assault On Antarctic Peak

By the Associated Press

A 12- to 15-man team of Pacific Northwest climbers and natural scientists will attempt an assault on Mt. Vinson in the Antarctic this year, a Seattle mountaineer says.

The 17,000-foot peak is 800 miles from the South Pole.

Climber Pete Schoening said the ascent would start about Dec. 1. He said it would be headed by himself, Jack D. Wilkins of Mercer Island, Wash., and Robert O. Lee of Portland, Ore.

He said the climb is expected to take about two months.

Nations Observe Military Ban In Antarctica

WASHINGTON, May 14 (AP) United States inspectors formally reported today that 10 Antarctic bases, including two Soviet stations, were obeying the treaty banning military activity.

The report, based on a January trip through Antarctica by two United States teams, was made public by the State Department after copies had been sent to the 12 signatory powers of the Antarctic pact.

The treaty stipulates that the subcontinent shall be used for peaceful purposes only. Washington did not expect to find violators, but sent the inspection teams by way of exercising the inspection right provided by the treaty.

The teams visited two Argentine, two Chilean, one French, one New Zealand, two British, and two Soviet bases. They concluded:

"Observations made by United States observers during the inspection of 10 Antarctic stations indicated that the activities of the stations visited were being conducted in consonance with the provisions and spirit of the Antractic Treaty.

"No evidence was revealed by these inspections which would indicate that Antarctica is being used for other than peaceful purposes."

They added that they saw no arms at all at either of the Soviet bases, Mirny and Vostok.

The report stated:

"Attitudes of host government personnel to the inspections were frank, helpful, courteous, and in keeping with the already existing cordiality of international relations and cooperation in the Antarctic."

Antarctic Admiral Expects To Find New Polar Peaks

WASHINGTON, April 13 (AP)—The Navy's Antarctic chief said today that he expected further aerial exploration of the south polar continent to disclose new "exciting discoveries."

Rear Adm. James R. Reedy told a news conference he believed there were as yet undiscovered mountains in the northwestern part of Antarctica.

"I feel there is another area up in northwestern Antarctica where radar returns indicate later flights may yet produce some exciting discoveries," the admiral said.

Last February, the Navy announced that a plane carrying Admiral Reedy and other Navy officers and men had discovered a new mountain range of up to 6,000 feet in uncharted areas of Queen Maud Land.

Swallowed by Antarctic Ice Cap, 74-Ton Tractor and 2 Men Saved

By Stuart H. Loory
New York Herald Tribune

WASHINGTON, April 6

All was well with the world —or at least that dismal part of it perceptible from the cab of a 74-ton caterpillar tractor, making its way across the ice from America's McMurdo station in the Antarctic to the Navy's supply ship, "Pvt. Joseph F. Merrell" berthed at an ice pier five miles away.

The tractor was lugging six empty supply sleds back to the ship. The weather was warm—15 degrees above zero —and the day was typically-overcast.

In the cab of the vehicle, Petty Officers D. D. Dundas and W. H. Gagnon, Seabees, began to light cigarettes.

"One minute there was blue sky. The next minute there were bubbles, water, ice and blue sky all mixed up together." That's how Capt. James B. Elliott jr., the Seabees' commander, described their plight yesterday.

The five-feet of ice beneath them gave way and the tractor—as heavy as 21 medium-sized automobiles—fell into the hole, settling in 24 feet of water.

Petty Officers Dundas and Gagnon were startled, to say the least, but they were not rattled. They had been trained to cope with such emergencies and they were experienced. Earlier in the season, they had fallen into another crevasse with another trailer and had climbed out safely. Last year, Mr. Dundas had barefly escaped falling into still another cravasse.

So they waited for the cabin to fill with water and then, with the pressure inside equal to the pressure outside, they calmly opened an escape hatch in the top, climbed through and swam to the surface.

They climbed up onto the ice and walked unhurt to the Merrill, 1:500 yards away.

"I had them checked up right away and then I shipped them home to Davisville, R. I.," Elliott said. "They were pretty well shaken up and besides, they had had their share of fighting the ice."

As soon as the Merrell unloaded its cargo, the ice-breaker Glacier broke a path through the ice to the tractor, two skin divers went overboard and attached slings and the vehicle, undamaged, was hoisted onto the ice.

Capt. Elliott explained that the tractor went through because warm water currents had eroded 3½ feet of ice overnight. "I had just checked every inch of that road the night before," he said.

17 FLEETS WHALED IN ANTARCTIC IN '63

WASHINGTON — Last year, 17 whaling fleets roamed the iceberg-studded seas of Antarctica where 70 per cent of the world's whales are caught. Only five nations — Japan, Norway, the Soviet Union, Great Britain, and the Netherlands —regularly send out large expeditions. The United States has not had a whaling fleet in the Antarctic since 1940.

But past slaughtering in the North Alanic, Arcic and off South Africa has ruined those once-rich hunting grounds. The Antarctic is the last major whaling area, and even there an international treaty limits the catch.

In the 1962-3 season, a quota of 15,000 blue-whale units (two smaller fin whales count as one blue-whale unit) was apportioned among all the whaling nations. The population of blue whales — largest mammal on earth — is now so low that some experts believe only a total ban for eight years can save them from extinction.

Whaling has come a long way since Captain Ahab chased Moby Dick.

Nowadays, the ships are steel, the harpoons as lethal as modern artillery andthe hunt is highly organized and internationally controlled, the National Geographic Society says.

Acentury ago, men chased 100-ton whales in rowboats and threw harpoons by hand. Today's whales are tracked by radar and helicopter. Whaling ships are armed with explosive weapons and factory ships can process 50 whales a day.

U.S. Discovers Antarctic Peaks

By the Associated Press

WASHINGTON, Feb. 12

A crew of a Navy plane has discovered a new mountain range in Antarctica and dropped an American flag on its tallest peak, it was announced Wednesday.

The discovery was made two days ago in uncharted areas of Queen Maud Land.

The mountains range from 4,000 to 6,000 feet and are an extension of the Shackleton Range.

The discovery was made while Rear Admiral James R. Reedy, commander of naval support forces in the Antarctic, was on a flight.

"While flying over the highest peak of the newly discovered mountains," the Navy said, "the plane dropped an American flag attached to a specially designed steel pole, weighted to stand upright on impact.

"Inside the pole was a message extending 'greetings to whoever may read this' and giving information about the flight."

The discovery, the Navy claimed, will help mapmakers fill in "the vast blank of spots on charts of the austral (southern) continent."

Blue Grass Grows In Antarctica

CHRISTCHURCH, New Zealand (UPI) — American botanists said Kentucky blue grass has been grown by scientists below the Antarctic Circle. The grass grew to a height of 1¼ inches, according to Dr. Emanuel D. Rudolph of Ohio State University and graduate student Clifford Wetmore.

They conducted the experiments on the coast of Victoria Land during the current scientific expedition to Antarctica.

ICE FLOW—

A 60-mile "picket fence" of wooden posts has been set up across part of the vast ice sheet of Marie Byrd Land in Antarctica to observe the manner in which the ice is flowing. Researchers from the United States Geological Survey hope to extend the line another 60 miles during the next Antarctic summer, which coincides with the northern winter.

This would carry the "fence" to the area of the Continental Divide where the ice, on one side, flows to the Atlantic via the Weddell Sea, and, on the other, to the Pacific via the Ross Sea.

U.S.-RUSSIAN TEST DUE IN ANTARCTIC

Seabees Erect Antenna for Joint Scientific Project

By J. ANTHONY LUKAS
The New York Times

CHRISTCHURCH, N. Z., Feb. 1

Nine Navy Seabees have finished putting up a 131-foot antenna at the Soviet Union's Vostok Station in Antarctica.

Completion of the antenna paves the way for one of the most significant cooperative projects ever undertaken by the United States and the Soviet Union. For the first time in Antarctic scientific research, the two nations will jointly conduct an experiment rather than merely exchanging information. Britain will also participate.

The experiment involves bouncing radio waves off the ionosphere to investigate solar cosmic rays, the high-energy particles that bombard the earth.

In addition to the one at Vostok, huge, steel antennas have been constructed at two United States Antarctic bases, the Amundson-Scott South Pole station and the McMurdo Station, and the British base at Halley Bay.

Transmitters have been or are being built at the United States Byrd station, at McMurdo and at the pole.

Construction of the Vostok antenna was one of the most arduous tasks in the entire project, officials at the Navy's Operation Deep Freeze headquarters here said.

The Vostok station, on the Antarctic plateau about 700 miles from the pole, is one of the coldest spots on the earth. It was there, on August 24, 1960, that th eAntarctic's lowest temperature was recorded —127 degrees below zero.

However, it is now summer in Antarctica and the major hazard for the Seabees at Vostok was not the cold but the altitude. In the rarified 12,000-foot altitude, even walking was a major effort.

Although acclimated to the 10,000-foot altitude of the South Pole, some of the Seabees suffered oxygen starvation at Vostok, so they had to wear oxygen masks.

The Soviet director at the station insisted that the Seabees rest two days before they started the antenna. The task took two weeks.

One Navy man who visited Vostok during this time expressed surprise at the spirit of the Russians there. "They were always yelling, chanting and singing," he said. "They always managed to be cheerful."

The Seabees have now returned to McMurdo Sound, but one American has stayed on at Vostok. He is John Jacobs, a 25-year-old University of Alaska graduate student, who will winter over there to operate the cosmic ray recording equipment and to train a Soviet operator.

Venimen Ignatov, a Russian scientist, is working with the transmitters at the Byrd Station.

Both men are tesing peaceful coexistence in the most trying of circumstances. Mr. Jacobs will be alone in cramped quarters for about 14 months with twelve Russians. Mr. Ignatov will spend the same amount of time with 3 Americans.

The project they are working on was developed by the United States Bureau of Standards as part of its contribution to the International Years of the Quiet Sun.

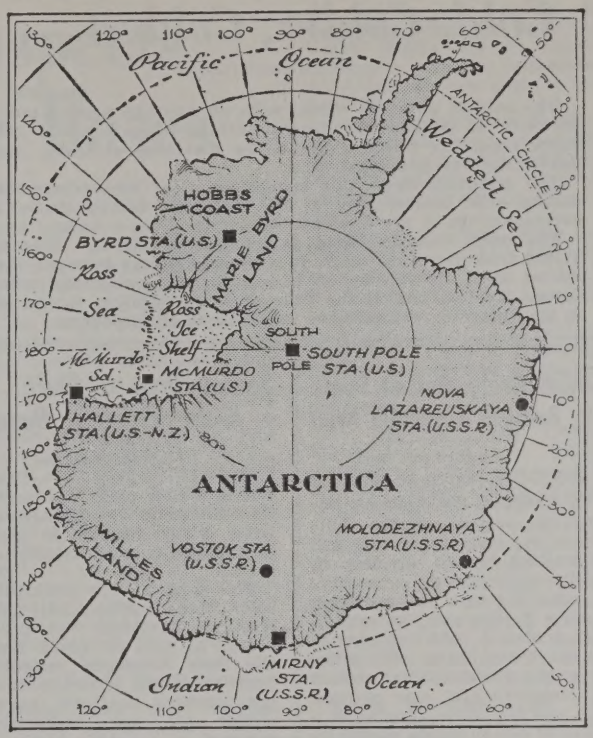
This period, which stretches over 18 months in 1964 and 1965 is a time of minimum solar activity. In contrast, the International Geophysical Year of 1957-58 was a period of maximum solar activity.

The lower incidence of sun spots, solar flares and other activity on the sun's surface will make study of cosmic rays much easier during this period.

The study will use a system of radio transmission known as forward scatter. This technique first developed by the Bureau of Standards in the early nineteen-fifties, gets through when all other forms of radio signals are blacked out by solar activity.

It does this by bouncing a signal off the ionosphere, the ionized upper region of the atmosphere, at unusually low elevations.

The waves beamed from a transmitter are scattered downward from the inosphere to an antenna at another station. By measuring the waves, scientists can find the intensity of cosmic ray particles.



The New York Times

ANTARCTIC BASES: The principal stations maintained in Antarctica by the United States and the Soviet Union are shown. Argentina, Australia, Belgium, Britain, Chile, France, Japan, New Zealand, Norway and South Africa also have bases, but all are not in operation at present.

Early Japanese Get Whales

TOKYO, March 15 (AP)—Japanese Antarctic whaling fleets already have caught 90 per cent of the 4,600 blue whale quota set for them this year by the International Whaling Commission, Tokyo officials announced.

Mountains Under Ice

A mountain range 4,000-6,000 feet high has been discovered in an uncharted portion of Queen Maud Land of Antarctica.

SOVIET PARTY GAINS GOAL IN ANTARCTIC

The New York Times

MOSCOW, Feb. 5—A Soviet tractor party traversing an unexplored section of the Antarctic on a 1,800-mile journey has reached the Pole of Inaccessibility.

There the 16-man party found a two-room hut abandoned by a previous Soviet expedition five years ago. The hut and its equipment and fuel supply were in good condition.

According to radio messages published in the Soviet press, the explorers plan to remain several days in the area before continuing their trek deep into Queen Maud Land and on to the Enderby Land coast.

Much of Queen Maud Land has not even been explored from the air, despite the intensive Antarctic research began about ten years ago.

The Soviet party, consisting of two tracked vans and a snow tractor towing supply sledeges, left the Soviet Union's Vostok Station a month ago. It has been carrying out soundings to determine the thickness of the ice sheet along the way.

Russia Expects to Build Another Antarctic Base

CHRISTCHURCH, Jan. 4 (Reuters)—Russia plans to build another big Antarctic Base, Dr. A. Treshnikov, director of the Leningrad State Arctic and Antarctic Research Institute, said here Sunday.

Dr. Treshnikov is the leader of a Soviet party that arrived here by air from Russian's Mirny Base on its way to Moscow.

He also said that Russia had no plans for inspections of Antarctic bases of other nations. Such as those scheduled by the United States, New Zealand and other member countries of the Antarctic Treaty. He said that he did not completely understand the necessity for inspections because for many years there had been exchanges of scientists among the bases.

5 Complain of Antarctic Heat

LE HAVRE, France, May 7 (AP) — A spokesman for five Frenchmen back from Antarctica said today that "strange as it seems, we suffered the most from the heat." The five, guests of a Soviet expedition, said that while temperatures outside ranged from 44 to 56 below zero, the Russians heated the interior of their shelter to 113 degrees.

2 TEAMS PRESSING ANTARCTIC STUDY

2-Nation Group Starts Trek —Soviet Party Deep Inland

By THEODORE SHABAD
The New York Times

MOSCOW, Feb. 17 — A joint Soviet-French tractor train left the Antarctic inland station of Vostok today for a 900-mile trip to the Soviet coastal headquarters at Mirny.

The Arctic and Antarctic Institute in Leningrad also reported it had learned from radio messages that an all-Soviet party, on its way since Jan. 4, had completed the second leg of its 1,700-mile journey and had reached the heart of unexplored Queen Maud Land, a huge but little-known section of Antarctica.

The two overland expeditions are part of an international program of Antarctic study during the Year of the Quiet Sun.

The two-nation team got under way after a month of acclimatization at Vostok to prepare it for traveling in oxygen-poor air at elevations of 11,000 feet to 12,000 feet.

The scientists, who are expected to arrive in about a month and a half, are traveling on a train of nine snow vehicles that took supplies from Mirny to Vostok in November for the station's fifth wintering season.

Instead of returning empty as in past years, the tractor train is being used this time for ice research and other scientific observations along the way. Dr. Pyotr A. Shumsky, a Moscow University glaceologist, is in over-all charge. The five French scientists who have joined the Russians are headed by Prof. Albert Bauer of Paris.

The Vostok base, which is situated halfway between the coast and the American South Pole station, registered the record low temperature of 127 degrees below zero in August, 1960.

The present Antarctic summer temperatures range from 40 to 50 below zero.

In addition to the French glaceologists, the Soviet staff at Vostok was joined this year by scientists from three other countries. They are a Czechoslovak cosmic-ray specialist, two East German geodesists and a United States radiophysicist, John Douglas Jacobs.

The Soviet party in Queen Maud Land completed its first leg of 600 miles in 28 days when it reached the so-called Pole of Inaccessibility. There it found a well-preserved portable hut and a plaster bust of Lenin abandoned by a previous Soviet group in 1958.

It resumed its trip on Feb. 6 and has now reached a point in the heart of the unexplored sector of Antarctica. It will turn northeastward toward the coast at the Soviet base of Molodezhnaya, 600 miles away.

The traverse being made by the Queen Maud Land party, headed by Andrei P. Kapitsa, is the longest since Sir Vivien Fuchs led a British trans-antarctic expedition on a 2,160-mile trip in 1958.

While these Antarctic research parties are exploring the interior, the Soviet supply ship Ob has been unloading provisions at Mirny and aviation fuel at Australia's Mawson station. The fuel is for Soviet planes that will make stops at Mawson on their way between Mirny and Molodezhnaya.

Cold, Colder, Coldest . . .

By the Associated Press

Moscow

The coldest point on earth, with an average annual temperature of perhaps 76 degrees below zero, is about 260 miles from the South Pole in the direction of India, say Soviet natural scientists.

The scientists drew this conclusion after measuring—via borings—the temperature of the Antarctic icecap there, a correspondent of the Soviet news agency Tass reports.

The point was described as lying on Sovietsky Plateau, 13,123 feet above sea level. It is about halfway between the Soviet scientific stations at the southern geomagnetic pole, named Vostok, and at the Pole of Inaccessibility, the point in the Antarctic farthest from the ocean in all directions.

Soviet Party Out of Fuel In Remote Antarctic Area

The New York Times

MOSCOW, March 1—A Soviet tractor-sledge party in an unexplored section of the Antarctic has run out of fuel and is waiting for an air drop of additional supplies.

According to a message from Andrei P. Kapitsa, the expedition leader, a refueling stop in Queen Maud Land, 400 miles from the Soviet coastal station of Molodezhnaya, was planned but was not made because of a delay of supply planes caused by bad weather.

Mr. Kapitsa's message, printed in Pravda, the Communist party newspaper, gave the party's position as Lat. 74 degrees S., Long. 40 degrees E.

The group has already traveled 1,500 miles from the Soviet station of Vostok through the Pole of Inaccessibility into the heart of Queen Maud Land.

Russian Killed in Antarctic

LONDON, March 10 (Reuters) —A member of the Russian Antarctic expedition, Anatoly Shcheblov, was killed when a transport column towing sled fell into a deep crevasse in the ice near Mirny Observatory, Moscow Radio reported today.

Soviet Plans to Shift Main Antarctic Base

The New York Times

MOSCOW, June 17—The Soviet Union plans to move its Antarctic headquarters from Mirny Station to the observation post of Molodezhnaya.

The shift of the principal base of the Soviet Antarctic research program was disclosed as part of plans for the next Antarctic expedition, scheduled to leave for the southern continent next winter for the Antarctic summer.

A major undertaking of the Soviet program next winter will be a 1,000-mile tractor journey from Mirny to the inland station of Vostok, during which Soviet scientists are scheduled to conduct studies of the Antarctic ice shield, weather and sun.

Franco-Soviet Expedition Completes Antarctic Trip

The New York Times

MOSCOW, April 4—A Soviet-French Antarctic expedition has reached the Soviet coastal base of Mirny, completing a 900-mile traverse by tractor and sled train.

The expedition left the Soviet Union's Vostok base in mid-February and carried out ice research along the way.

The chief French scientist, Prof. Albert Bauer of Paris, became ill on the way and was evacuated by air.

Expedition members will leave Antarctica aboard the Soviet supply vessel Ob, which will stop off at Le Havre.

Another Soviet tractor party recently completed a 1,700-mile journey from Vostok through previously unexplored Queen Maud Land to the Soviet coastal base of Molodezhnaya.

Ridge Blocks Antarctic Water

Walvis Ridge on the bottom of the South Atlantic forms a barrier that prevents cold Antarctic bottom water from entering the eastern Atlantic, the National Geographic Society says.

SOVIET WHALE FLEET TO VISIT MELBOURNE

The New York Times

MELBOURNE, Australia, April 20—The Soviet Union's Antarctic whaling fleet of 34 ships is expected to dock in Melbourne Thursday after seven months at sea.

The fleet is lying off the coast of the State of Victoria, awaiting permission from its headquarters in Odessa to make port. Aboard are 1891 crew members, including 71 women. They will have £75,000 ($165,000) to spend in four days ashore.

This was announced tonight by Commodore Aleksei Solyanik, 50 years old, general director of the fleet. He docked in Melbourne in one of the fleet's 32 whalecatchers to make landing arrangements.

Commodore Solyanik said the fleet, which included two factory ships, had caught 5,139 whales, one less than the number allowed it under the international whaling agreement.

SEALS HELP SCIENCE—

Two Antarctic seals have helped scientists catch fish beneath the ice of McMurdo Sound. In one case the problem was to run a line under the ice from one hole to another, 300 yards away, so that a fish net could be rigged there. The rope was tied to a seal and he was pushed into one hole. Being an air-breathing mammal he soon swam to the other hole and crawled out.

In the other case a seal caught a fish more than four feet long and biologists snatched the fish away from the animal before any damage had been done except a nip out of its tail. According to the National Science Foundation, the fish, a rare species peculiar to the Antarctic, was kept alive ten days, permitting physiologic tests as well as a post-mortem examination.

Russians End Trek at Pole

LONDON, March 23 (Reuters) — Soviet polar explorers have successfully completed one of the largest expeditions over the Antarctic ice plateau, the Russian press agency Tass said today. A tractor sledge train spent 80 days traveling about 1,700 miles from Vostok Station to Molodezhnaya Station.

Mummified Seal Displayed

WELLINGTON, New Zealand (Reuters)—A mummified crabeater seal from the Antarctic has reached Wellington looking like a gnarled log of wood. The 2000-year-old seal is on loan from the zoology department of Canterbury University in Christchurch for a display here.

Team Inspects Antarctic Bases

By Albert E. Norman

Australia-New Zealand Correspondent of The Christian Science Monitor

Sydney, Australia

New Zealand has formally inspected United States Antarctic bases under the inspection provisions of the 4-year old Antarctic Treaty.

The New Zealand official government team reported that the provisions of the treaty are being scrupulously observed by the United States. The 12-nation treaty confines signatories strictly to nonmilitary operations in the polar continent.

It also prohibits nuclear tests in the region or disposal of nuclear waste products.

When Prime Minister Keith J. Holyoake announced that his government would formally invoke its right of inspection under the treaty, he made it clear this was not to suggest the United States was not observing the treaty provisions.

The New Zealand Government simply considered it was desirable to demonstrate the importance which it attached to inspections as provided under the treaty, said Mr. Holyoake.

The central point here is that the Antarctic is the world's only formally recognized totally nuclear-free zone.

The recent Moscow treaty imposes a worldwide ban on atmospheric nuclear tests. This is not recognized by all nations.

But all nations interested in the Antarctic recognize the nuclear arms control provisions of the Antarctic Treaty.

"The New Zealand Government, of course, has consistently taken the view that any measures in the field of arms control or disarmament must be accompanied by appropriate measures to ensure their observance," said Mr. Holyoake.

There have been various extended opportunities since the treaty was signed in December, 1959, for both the United States and the Soviet Union to observe informally what the other was doing in the Antarctic.

American and Soviet expedition scientists and observers have been exchanged and have been attached for lengthy periods to each other's expeditions.

Under this system, treaty infringements could scarcely have gone undetected for long, if there were any serious breaches.

The Antarctic Treaty nations also have agreed to exchange nuclear information connected with Antarctic research or operational experience.

In this field, the United States was the first treaty member to install and operate a nuclear power plant, located at its McMurdo Sound base.

In addition to such exchanges, treaty members bind themselves to conserve the indigenous animal and plant resources of the Antarctic. They also have agreed not to introduce into the region exotic flora or fauna other than under rigid control conditions.

Waste products from the United States nuclear power plant at McMurdo Sound are suitably contained and shipped out of the Antarctic.

Dr. Robert Cushman Murphy of the American Museum of Natural History in New York is one who has stressed the great need for international expeditions to watch carefully where they literally put their feet in the Antarctic.

Dr. Murphy has pointed to the harm that "heedless" use of aircraft or helicopters can do near penguin rookeries.

While penguins seem to be on very friendly terms with humans in the Antarctic, the penguins are not accustomed to sustained contact with humans.

As Dr. Murphy indicates, it is up to human beings—not the penguins—to act accordingly.

Ice-Age Theory: Polar Study

The Christian Science Monitor

A novel view of how the world's ice ages began has been suggested by Dr. A. T. Wilson, a member of a six-man Victoria University team which recently returned from the polar continent.

According to the New Zealand natural scientist, the annual rates of precipitation and evaporation of water in the Antarctic are important to the equilibrium of the continent's vast icecap. This cap is about two miles thick at the South Pole. Taken together with many high mountains this means Antarctica has the world's highest average continental elevation.

This great frozen mass, poised high above the oceans, contains an estimated 5 million cubic miles of ice. As Dr. Wilson sees it, this ice sheet is welded to the bedrock of the continent by a constant temperature low enough to maintain the weld.

* * *

To learn the secret of the weld, how its temperature is maintained, Dr. Wilson and D. A. House, an expedition colleague, went down the snow mine at the United States station located at the South Pole.

This southernmost American mine enables the profile of part of the ice sheet to be studied. The New Zealand scientists discovered from snow-mine samples that water precipitation in Antarctica is under three inches a year. This annual rate is equivalent to that found in some of the world's driest deserts.

This under-three-inch precipitation rate gives the Antarctic ice sheet a slow accumulation rate. At the same time, Dr. Wilson points out, the ice sheet is much thinner or lower than it was in the past, according to some evidence.

The New Zealand theory requires maintenance of annual precipitation in order to maintain the low temperature of the underlying ice-rock weld. But it would seem that this annual precipitation must not become excessive, in Dr. Wilson's view.

If a comparatively fast build-up occurred — taking about 1,000 years — the weight of ice, as the New Zealand scientist puts it, may begin to exert pressure sufficient to increase the temperature of the anchoring weld. Similarly, if annual precipitation were reduced, the cooling effect of the ice sheet may not be low enough to maintain the weld.

A release of the icecap from bedrock, theoretically speaking, would allow the vast mass to move out to sea and nearer the world's temperate zones, a huge mirror deflecting, it is estimated, as much as 4 percent of the sun's heat.

A fall of such magnitude in world heat levels, Dr. Wilson suggests, would tend to increase the size of the North Pole ice sheet at the other end of the polar axis.

"There could be a type of triggering effect here, initiating the ice ages," Dr. Wilson told newsmen.

"At present this is no more than a theory, but the information we collect this year may give us some idea if it is true," he continued.

* * *

In this research, the New Zealand expedition has been measuring the age of salt in lakes in dry valleys in the Antarctic. These valleys were once filled with ice.

From the known rate of inflow it is possible to learn the salt accumulation rate. From these investigations, the expedition estimates that the ice sheet had moved out of this part of Antarctica about 50,000 years ago.

This indicates, of course, that the ice sheet was higher than at present and had exerted sufficient pressure — according to the New Zealand theory — to melt the basic weld.

The New Zealand scientist stresses the extremely slow nature of the process envisaged in his theory of ice age initiation. Not only is the ice sheet much lower than 50,000 years ago, there is also the braking effect of the earth's internal heat and the stored heat of the oceans.

Fossilized Toothed Whale Is Uncovered in Australia

The New York Times

MELBOURNE, Australia, March 27—Two United States scientists have uncovered parts of a fossilized toothed whale at Beaumaris, a Melbourne seaside suburb.

The Americans are W. D. Turnbull of the Chicago Natural History Museum and Dr. E. Lundelius of the University of Texas. They were searching for fossils at Beaumaris when the proprietor of a boatshed pointed out the fossilized bones of the whale in a rock under his jetty.

A piece of fossilized skull was found 20 years ago. The backbone and more of the skull have now been recovered.

The fossils, embedded in several tons of limestone, are being studied at the National Museum in Melbourne.

The whale, which was about 20 feet long, has been identified as a member of the Odontoceti group, the same family as the killer whale. It is estimated to have lived 15 million years ago.

Argentina Reasserts Claims In 'Antarctic Day' Events

The New York Times

BUENOS AIRES, Feb. 22—Argentina marked its first Antarctic Day today with a number of official events reaffirming this country's sovereignty over an area that both Chile and Britain claim parts of.

Earlier this week the Government decreed every Feb. 22 would be celebrated as Argentine Antarctic Day. Foreign Minister Miguel Angel Zavala Ortiz, the commanders in chief of the Army and the Navy and other Government and military leaders flew south from Buenos Aires to set sail for the Antarctic in a transport vessel escorted by a Navy icebreaker.

Meanwhile, Interior Minister Juan Palmero planned to address the nation on "Argentina's irrenounceable sovereignty rights" in the Antarctic.

Soviets Explore Antarctic 'Blank'

By Reuters

Moscow

Soviet Antarctic explorers hope to unlock the frozen secrets of immense "blank spots" bigger than European Russia as they trek thousands of miles across uncharted tracts of the icy continent early in the new year.

A 15-man team will cover some 2,000 miles from the inland Vostok base to the pole of inaccessibility and on to the center of the blank spot, where no man has ever set foot.

Some 400 men are taking part in the Soviet contribution to the 1963-64 research program under the International Year of the Quiet Sun project.

Scientists from the United States, Britain, France, Hungary, and Czechoslovakia will join the Soviet expedition. One Soviet scientist will spend the winter at a United States base another at a British base.

The most spectacular part of the project will be the two treks across the ice cap. One team of snowcat sledge trains will set out from Vostok across the frozen unknown south of Queen Maude Land to Molodezhnaya base, while the other will head nearly 900 miles to Mirny base.

The 2,000-mile trek will be under the leadership of veteran antarctic explorer Andrei Kapitsa who led a Soviet team to the South Pole.

The area which his team will cover is so vast even aircraft can only reconnoiter part of their route. The aerial team hopes to discover whether there are any outcrops of bedrock in the blank spot region.

As they approach the Indian Ocean at Molodezhnaya, the ground team will have to traverse narrow snow bridges over the crevasses which criss-cross the region.

Five French scientists under Prof. Albert Bauer, a glaciologist, will join the other expedition, which will be led by Prof. Pyotr Shumski.

The two groups will take meteorological, altitude, and magnetic readings, study snow accumulation and the growth and movement of the ice cap.

The bulk of the Soviet expedition is due to arrive in Antarctica early in January, when their ships the Estonia and the Ob will be able to force a passage through to Mirny.

The expedition could not afford to lose so much time, so a 67-man advance party already has flown the more than 15,600 miles from Moscow to Mirny in two Ilyushin-18 airliners.

Toughest of the five Soviet bases is Vostok, reputed to be the coldest point in Antarctica, 875 miles inland and about 11,500 feet above sea level.

In winter, the mercury usually drops to near the minus 94 Fahrenheit mark and sometimes plunges as low as minus 126 Fahrenheit.

This year's expedition hopes to expand Molodezhnaya Base, where until now only eight scientists have been working, and make it the center for further Antarctic research.

A new seasonal base, named Momsomolskaya, will be opened this year to ensure radio communications in the vast interior.

Just before the advance party flew out from Moscow, Soviet historians claimed that it was a Russian who discovered Antarctica.

They had found a map, drawn by explorer Fabian Bellingshausen on his 1819-21 expedition which had lain unidentified for 140 years. Experts, who studied the map, decided Bellingshausen knew that he had reached an ice-covered continent.

Explorer Sees Antarctic Change

By Norman Ingrey

The Christian Science Monitor

Montevideo, Uruguay

Antarctica is losing some of its chill, says Sir Vivian Fuchs, the British explorer.

This is his reaction after one of the shortest "summers" in the far south for many decades.

Sir Vivian passed through here from the main British base at Marguerite Bay, from which he had directed nearly three months' work of the British Antarctic Survey expedition.

He left on his way to London with these predictions:

- "Central heating" will soon be completed—though on a very small scale—in British Antarctic quarters.
- An international air route is in the making, though it will be a "very costly operation."
- The "international spirit" is being increasingly exemplified in team-work in the far southern regions.

The central heating, so far as the British are concerned, is limited to a two-story plastic-walled building on Signy Island.

This is fitted with research rooms and an aquarium downstairs and living quarters upstairs.

"Life is getting more comfortable down south every year," remarked Sir Vivian with a smile.

He was less specific about the future air route.

There now being profitable routes across the Arctic, he feels that these have to come in the Antarctic.

Establishment should be facilitated by the existence of the bases of many nations, he said.

There was a good deal yet to be learned about communications, he added, which are rendered difficult because of auroral belt interference.

The main work of the British expedition is the surveying of an unmapped range of mountains 9,000 feet above the east of the Wendell Sea in Coats Land. This survey will continue for some years to come.

More than 100 scientists accompanied Sir Vivian on his trip to the southern "wastelands."

Among them was an English-speaking Soviet geologist. That was an example of international cooperation in the Antarctic today, he said.

A British glaciologist is working with the Russian expedition there.

The Soviets are ahead in one department, he admitted. "We have always been shy about inviting women along into our small communities—a normal base is manned by a dozen men at the most.

"But the Soviets," he said, "have two women biologists with one of their expeditions."

Sir Vivian is one of those explorers who quickly tires of "polishing the seat of a chair" at headquarters.

"I just had to get out of London back into the field—or the snow. That's the only way of getting to know what's going on," he declared.

Apart from "central heating," a further reason for life in the Antarctic "getting more comfortable down south," in his opinion, is the improved transportation.

One of his tasks this past brief summer, December to March, was to test a "snow petrel," a land-bound "aircraft" capable of skiing over snow, ice, and water up to 100 miles an hour.

Sir Vivian thought this "snowmobile" would turn out better than the tractor, provided speed is kept down.

It is an eight-foot long "unsinkable" aircraft fuselage running on four skis with a rear-mounted air screw.

Price Increases for Whale Oil

Vegetable oil troubles have spread all the way to the Antarctic and London.

A dispatch March 5 from Comtelburo stated that Unilever had bought "the entire uncommitted Antarctic pelagic whale oil catch" at £79 ($221.2) a ton. Last year Unilever paid £65 ($182) a ton for 80,000 tons.

American sources indicated that low soybean oil prices would probably peg the price of whale oil at around the present values at Rotterdam of £82 to £83 ($231.60 to $232.40) a ton. Whale oil trade sources said that although the deal meant no further first-hand offers of Antarctic whale oil were likely to be seen this year, the sellers' market in oil already sold to dealers is unlikely to boom.

The whale oil is expected to come primarily from the Norwegian and Japanese catches, plus some Dutch oil, but none from the Russian catch is expected. According to the latest reports, only 6,686 blue whales had been taken by Feb. 29 against 8,638 in the like 1963 period. The season should end about April 7.

* * *

Norway's four Antarctic whaling expeditions processed 47,997 barrels of whale and sperm oil during the first 17 days of the 1963-64 season. This was 5,505 barrels more than the amount processed for the same period last season.

11 to Tackle Big Ben

SYDNEY, Australia, Feb. 26 (AP)—An 11-man expedition plans an assault on unconquered Big Ben, a 9,005-ft. peak on lonely Heard Island in the southern Indian Ocean. Big Ben is notorious for crevasses, avalanches and 100 MPH winds.

Whalers today use radar and helicopters to track their prey and "catcher" ships are armed with explosive weapons.

WORLD SCIENTISTS OPEN SOLAR STUDY

Experts of 64 Nations Start 2-Year Research Today on the Sun's Influence

By HAROLD M. SCHMECK Jr.
The New York Times

Jan. 1

Today, and for the next two years, scientists of many nations will focus their instruments and their thoughts on the sun.

During this period rockets will roar upward from launching sites distributed from the Arctic to the Antarctic bearing instruments to the fringes of the atmosphere; high-altitude balloons will drift a dozen or so miles above the earth's surface; satellites and deep space probes will be put into orbit and a multitude of earth-bound scientific instruments around the globe will gather data.

The two-year period beginning today is the global scientific collaboration called the International Years of the Quiet Sun. Known universally to scientists as the I.Q.S.Y., it is a sequel and complement to the International Geophysical Year (I.G.Y.) of 1957-58.

The activity of the sun governs life and its environment on the earth. The relationships between solar events and resulting effects on earth and interplanetary space have never been thoroughly mapped, though the broad picture has become more apparent during recent years.

Much of this growing understanding has been due to studies carried on from pole to pole during the I.G.Y., a span of a year and a half picked to coincide with a period of maximum solar activity.

As the name of the I.Q.S.Y. implies, this new undertaking has been scheduled for a period in which the sun is expected to be quiet—generally free from sunspots and solar flare eruptions. The solar cycle—from sunspot maximum to sunspot maximum—is about 11 years.

A main objective of the I.Q.S.Y. is to contrast the data gathered during the I.G.Y. period of maximum activity with that of the following period of quiet. Special emphasis during the I.Q.S.Y. will also be put on studies that are best done during a period of minimum solar activity and on studies of isolated solar disturbances not complicated and confused by a welter of other solar events.

Through these studies and comparisons scientists hope to draw a detailed dynamic portrait of the sun and the inner region of the solar system.

As was done during the I.G.Y., data from laboratories and expeditions throughout the world will be sent to 12 international data centers where the information will be available to scientists.

To date some 64 nations have agreed to take part in the effort, according to Dr. Martin A. Pomerantz, director of the Bartol Research Foundation of the Franklin Institute, Philadelphia, and chairman of the United States planning group for the I.Q.S.Y.

Geographically the only great gap is that of Communist China, which has refused to participate unless the Nationalist Chinese are expelled.

Though the number of nations participating is about the same as for the I.G.Y., the world scope of geophysical research has been increasing steadily for the last several years and stands now at its highest point.

Thus, as Dr. Pomerantz noted in a recent article, the I.Q.S.Y. has a far larger scientific community on which to draw than did the I.G.Y. Furthermore, the base of research already in progress is substantially broader.

The I.Q.S.Y. is not to be a tightly organized research program, but a coordinated effort in which scientists of many nations will try to arrange and time their research activities in such a way as to contribute best to the over-all objective.

As was true during the I.G.Y. a geophysical calendar has been drawn up marking certain days as "World Days" or intervals during which scientists in various fields are asked to make special measurements so that a simultaneous global picture can be drawn.

No special events are to mark today's opening of the I.Q.S.Y., but the date, being a Wednesday, coincides with one of these special days. Each Wednesday has been designated a Regular Geophysical Day during which appropriate laboratories have been asked to make certain special measurements in meteorology, ionospheric physics and the state of earth's magnetic field.

A network of stations coordinated by the Air Force's Cambridge Research Laboratory in Bedford, Mass., will send up high-altitude balloons for studies of upper atmosphere ozone from locations ranging from Thule in Greenland and Fairbanks Alaska in the north to the continental United States and the Panama Canal Zone in the south.

United States Weather Bureau projects of a similar nature have balloon launchings scheduled in the Antarctic and the United States.

Laboratories at many locations will make special measurements today of the ionosphere. Other laboratories will make detailed measurements of the earth's magnetic field during a four-hour period. Scientists hope that a detailed look at the geomagnetic field once a week may reveal special fluctuations that would otherwise go undetected.

Official symbol of International Years of Quiet Sun.

In addition to the regular planned days and intervals, which were also a feature of the I.G.Y., the I.Q.S.Y. will involve special retrospective intervals for detailed backward glances, so to speak, at events that occur and, thereafter, seem to be of extraordinary scientific interest.

Each nation has its own program for the I.Q.S.Y., the great powers being most broadly and deeply involved. The United States program will cover the whole broad range of the sun's effects on earth, the atmosphere and interplanetary space.

Appropriately for the whole global endeavor, observers said yesterday, the sun appears to be "reasonably quiet" as the I.Q.S.Y. dawns.

Soviet Participation

The New York Times

MOSCOW, Dec. 31—At dawn tomorrow the Soviet Union's Far Eastern observation posts will begin this country's contribution to the International Year of the Quiet Sun.

Posts along the Pacific Coast are among the vast network of 600 Soviet observation stations manned by thousands of scientists and technicians who will play a substantial role in the international cooperative project.

The Soviet Union is playing an important part because of its great east-west extent, reaching nearly half way around the earth and spanning 11 time zones. Soviet stations thus will be able to keep a watch on the sun a far greater share of the time than observation posts of other nations.

The Soviet Union also is well placed to make a significant contribution because of its two drifting ice stations in the Arctic Ocean and four year-round observation posts in the Antartic.

The New York Times

Both the United States and the Soviet Union are maintaining scientific stations on drifting ice floes or ice islands in the Arctic Ocean. They are slated to observe the aurora, the varying magnetic field of the earth and, in some instances signals from huge balloons that are to be launched into the circumpolar vortex.

This powerful wind blows in a vast circle, some 5,000 miles in circumference, centered near the North Pole. In winter it often exceeds 200 miles an hour. Beginning late this month or early in February a series of at least 20 balloons is to be launched from Point Barrow, northernmost tip of Alaska.

Their payloads of 450 pounds are as elaborate as those of the complex earth satellites planned for the I.Q.S.Y. They will observe the earth's magnetic field in a region where its force is almost vertical. Because of this, weaker particles raining on the earth from space can penetrate to the upper fringes of air.

However, when the sun is active, it prevents any such particles from entering the inner solar system. Now that the sun is quieting down, it may be possible to detect these gentle messengers from the universe and see what tale they have to tell. This is the hope of Dr. John R. Winckler of the University of Minnesota, who heads the project.

The balloons are designed to expand to 1.5 million cubic feet, but do not burst like ordinary balloons. Instead they are strong enough to stop expanding and float at 100,000 feet. Each is to circle the pole for a week. Their instruments should detect any showers of particles that smash into the polar atmosphere after a solar flare. Such events cause prolonged radio blackouts and present a possible hazard to space travelers.

A similar balloon program is being carried out from the Australian base at Macquarie Island, near the Antarctic. The 30 balloons, equipped by the University of California at Berkeley, are to stay up only about 20 hours.

About a score of the stations being maintained in Antarctica by 11 nations are to take part in the I.Q.S.Y. The program will bring a newcomer to South Polar exploration: the Netherlands, which is to team up with Belgium in reactivating the Belgian base, Prince Baudouin.

Actually the research initiated by the I.G.Y. has never ended. This had been especially true of space research and the Antarctic programs. The I.G.Y. was a historic experiment in scientific cooperation between those of widely divergent ideologies.

Alaska Earthquake Produced Permanent Coastline Changes

By WALTER SULLIVAN
The New York Times

WASHINGTON, April 21 — As much as 12,000 square miles of the earth's surface appears to have been lifted from three to eight feet by last month's Alaskan earthquake, it was reported today.

A comparable area, to the northwest of a "hinge line," subsided, permanently altering parts of the coast.

Wavelike motions of the earth were so far-flung that, in Texas, the city of Houston bobbed up and down almost five inches. Water slopped out of swimming pools and swished back and forth in harbors, breaking ship moorings.

Furthermore, the pistonlike motion of the earth, up and down, created atmospheric waves that were detected in many parts of the world. In Georgia water levels in wells pumped up and down 10 to 20 feet.

These effects of the March 27 quake were described at the annual meeting of the American Geophysical Union, being held here this week.

Dr. Frank Press, director of the seismological laboratory of the California Institute of Technology, called it "one of the great earthquakes of all time."

Dr. Press recently returned from a tour of the quake area. He confirmed the dramatic uplift of a vast region, reported to the meeting by Arthur Grantz of the United States Geological Survey. The remarkable thing, they said, was that communities suffering the most radical uplift were little damaged.

Thus the town of Cordova is six to eight feet higher than it was before the quake. Yet its buildings suffered comparatively little.

Middletown Island, well out to sea, was similarly lifted out of the water. On the other hand the coastal areas of the Kenai Peninsula and Kodiak Island have subsided about the same amount.

Dr. Jean Claude de Bremaeck of Rice University in Houston said little damage had been done by the bobbing motion there because it had been so slow. The wave crests passed at 15-second intervals.

However, in Corpus Christi, he said, a 650-ton foundation was reportedly moved four inches.

Early reports of "tidal waves" in the Gulf of Mexico were dismissed by some scientists as unlikely. What actually occurred appears to have been a series of seiches.

These are slopping motions set up in an enclosed body of water. They occur where there is a resonant relationship between some subtle wave stimulus—in the air or in the earth—and the size of the water body. The effect is comparable to that whereby small shoves, properly timed, can set a swing into motion.

Participants in today's session pointed out that the great earthquake that occurred in Assam, India, in 1950 produced seiches in the North Sea area of Europe.

Mr. Grantz said the chief damage occurred were homes and installations that had been built on unstable ground. He noted that much of the Alaskan coast was precipitous, and that ports therefore had been built, in many cases, on river deltas. In some cases the ocean floor off these deltas slopes at a 30-degree angle.

Consequently, when the quake occurred, entire waterfronts slipped out to sea in gigantic submarine landslides.

This was what occurred to about a mile of shoreline in Seward and a large part of Valdez. The waterfront of Whittier apparently sank as though on an elevator.

The heaviest damage was in that part of Anchorage built on a formation known as "Bootlegger Cove clay," which is 400 feet thick. When jostled by long-period waves, it compacted, dropping the surface level abruptly.

The cleavage of the earth's crustal rocks is thought to have begun at a point near the head of Prince William Sound, almost midway between Anchorage and Valdez. The crack then raced southwest at lightning speed.

Mr. Grantz said specialists from the Geological Survey would make recommendations for relocation of the harbors that were swept out to sea in an effort to avert a repetition.

No evidence of the crack itself has been found on land, possibly because snow fell before a thorough search could be made.

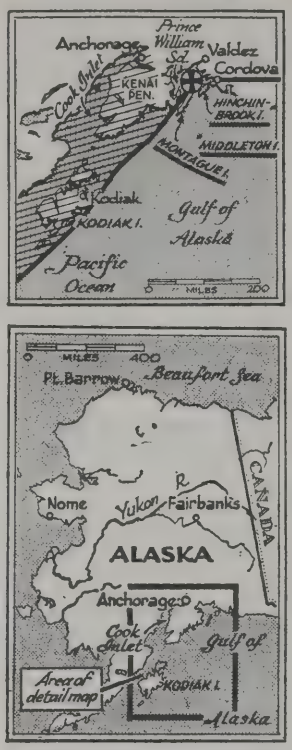
However, the California Institute of Technology and others have set up seismic stations to record the continuing aftershocks in an effort to pin down the line of cleavage.

Its offshore segment seems to lie between the Aleutian Trench, a deep cleft in the ocean floor paralleling the coast, and the mountainous zone extending from the Chugach Mountains, through the Kenai Peninsula an Kodiak Island.

An aerial survey showed that ice in frozen lakes over a region of 100,000 square miles was cracked and buckled by the quake. However, no change in Alaska's many volcanoes has been reported.

Photographs were shown illustrating how "swashes" of water, produced by seiches and seismic water waves, swept up shorelines to heights as mush as 200 feet above sea level, doing extensive damage.

One member of the audience noted that, even as far away as Iran the surface of the earth moved up and down a third of an inch as the Alaskan waves passed.



The New York Times April 22, 1964

The Alaskan quake lifted a vast region, including hundreds of miles of coastline, as much as eight feet out of the water. On the westward side of the line (diagonal shading), along which the earth's crust apparently cracked, the land sank a comparable amount. Underlined are some of the locations that rose from three to eight feet (the town of Cordova and Hinchinbrook, Montague, and Middleton Islands. The sinking was especially severe along the shores of Kodiak Island and the Kenai Peninsula.) Cross shows the center of quake.

Alaska to Expand Quake Warning Net

By the Associated Press

Anchorage, Alaska

Alaska is going to expand its seismic warning system so it will be possible to issue tidal wave warnings within minutes after a major earthquake.

Rear Admiral H. Arnold Karo, director of the United States Coast and Geodetic Survey, says seismic instruments will be added at its Fairbanks and Sitka observatories. Others will be installed at Pt. Barrow and at the Alaska Methodist University here.

He said the stations will be banned together in a network so that a warning could be issued immediately without waiting for word from Honolulu, the tidal wave nerve center for the Pacific area.

ALASKA PORT AREAS TO BE REVITALIZED

April 19

The Maritime Administration, which is responsible for developing ports and advising communities on water terminal construction, has assigned two of its experts to a twin job in Alaska.

Howard J. Marsden, chief of the Ports Division, and Capt. Frank Huxtable, supervising operations surveyor based in Seattle, have been assigned by Nicholas Johnson, maritime administrator, to inspect port area damages in the wake of the recent earthquake and to explore the feasibility of installing improved cargo-handling facilities in southeast Alaska and in the Bering Sea area.

After studying damage reports and examining the devastated facilities, they are to weigh the operational and economic possibilities of more highly mechanized maritime cargo operations in the southeast section.

They are also to survey vessel and barge terminal facilities in the Bering Sea area where limited harbor depths necessitated literage operations for loading and unloading deep-draft vessels. The transfer of military cargo required the use of landing craft.

The alternative recommendation may be a deepening of the dock-side draft that will permit bringing vessels alongside the piers.

Aleutian Volcano Erupts

ANCHORAGE, Alaska, March 13 (AP)—A major volcanic eruption was reported late Friday on Unimak Island in the Aleutian chain. Two miles of lava flowed from the crater and debris was hurled 2,000 feet into the air. The eruption was reported by a Coast Guard plane to be about five miles east of Westdahl Peak, on Pogromni volcano at the west end of Unimak.

BIRDS DISPLACED BY ALASKA QUAKE

Many in South Central Area Seek New Nesting Grounds

ANCHORAGE, June 6 — Higher tide levels since the March 27 earthquake are forcing waterfowl in south central Alaska to seek new nesting and feeding ground, but the moose are expected to have no problem with land changes resulting form the big temblor.

Loren Croxton, regional supervisor for the game division of the state Department of Fish and Game, said he found the moose in no trouble this week when he surveyed the large Chickaloon flats area on the north tip of the Kenai Peninsula.

At the same time, he confirmed that 75 to 80 per cent of the marshes and nesting grounds used by waterfowl in the same area have been swept by tide waters, which left layers of silt on the vegetation and salt water in fresh water ponds and lakes.

Mr. Croxton said the moose, however, have never looked to the now sunken lowlands for food "but browse up through the brush and the meadows," so the land changes have no effect on them. He said they were in no danger of a food shortage.

"But there will be an effect on the waterfowl," Mr. Croxton said.

Mr. Croxton said the Chickaloon area appears unchanged since Jim Hemming, Arctic Health Research biologist, and Ray Trembley, United States Fish and Wildlife Service biologist, earlier reported the nesting grounds greatly reduced in size. They also expressed fear the salt water would kill the grasses, sedges and insects on which the ducks and geese feed.

The Susitna flats area, across Cook Inlet from Anchorage, however, has been reported undamaged by high tides. Three smaller flats in the immediate Anchorage area are termed "completely ruined" for the birds.

In the Cordova area, where the land was raised by the earthquake, the waterfowl appear to have a larger area, which possibly can handle some of the displaced birds.

While there were reports immediately after the earthquake that the Cooper River and a big nearby lake had gone dry, the temporary closure of the river was caused by a landslide. The river returned to normal in a few days. The "dry lake" report is attributed to the low water level of the body, which had its thick icy covering fractured by the quake.

Fish and wildlife experts are still uncertain as to what the effect of the earthquake will be on Cook Inlet salmon fishing. A state commercial fisheries biologist, Jim Rearden, says it "will take years" to evaluate the damage.

Mr. Rearden fears there is considerable damage to young salmon developing in the gravel of streams at the tip of the Kenai Peninsula. The extent of this damage will not be known until at least the 1965 pink salmon run.

LOWELL THOMAS JR.

June 18

Alaska lecturer **LOWELL THOMAS JR.** says the March 27 earthquake which shook up his state so badly also stirred up the big Kodiak bears and got them 'way off schedule.

Thomas told the Seattle, Wash. Rotary Club yesterday the quake roused the bears from their winter hibernation.

After a while, the bears went back to their dens for the rest of their winter sleep. Now they're sleeping in, and guides are afraid the bears won't be up and about when the hunting season starts.

Eskimos Found to Contract Trichinosis From Bear Meat

BOSTON (Science Service)— Eskimo families in western Alaska have had two outbreaks of trichinosis from eating bear meat affected by Trichinella spiralis, a nematode worm that is commonly associated with underdone pork.

The Communicable Disease Center of the Public Health Service in Atlanta confirmed 23 cases, Dr. James E. Maynard and Dr. Irving G. Kagan reported in the New England Journal of Medicine.

Dr. Maynard, formerly at Anchorage, is now at the University of California School of Public Health, Berkeley. Dr. Kagan is chief of the parasitology unit, laboratory branch, Communicable Disease Center, Atlanta.

Alaskan River and Lake Go Dry

FAIRBANKS, Alaska, March 31 (AP)—One of Alaska's large rivers and a big nearby lake have gone dry, a pilot reported today.

Since the earthquake last Friday, there have been reports that the Copper River had stopped flowing into the sea. Jack Wilson, a Fairbanks air taxi operator, confirmed the reports in a flight more than 100 miles inland from the point where the Copper flows into the Gulf of Alaska near the town of Cordova.

Mr. Wilson said the Copper was dry, and so were 20-mile-long Lake Tazlina and the Nelchina River, which flows into the lake.

"There is ice on the surface of the lake but no water underneath," Mr. Wilson said. "The ice is broken up into hundreds of thousands of fractures."

The area is 50 miles from the epicenter of the earthquake, one of the most powerful in history.

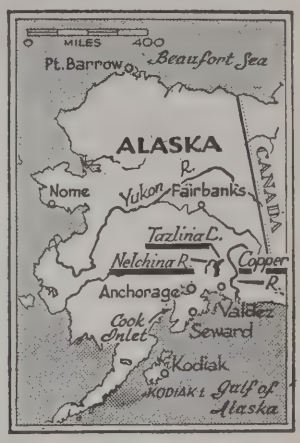
Mr. Wilson speculated that the water might have drained into giant factures, or that earth slides or crumbling glaciers in areas he had not seen could have been the cause.

ANCHORAGE, April 1 (AP) —The Copper River, which went dry along its lower reaches after Friday's earthquake, is running again.

Reports from several sources said the flow seemed normal for this time of year.

But the fear remained that the temporary blockade, believed to have been caused by landslide in glacier country about 100 miles from the sea, might have killed countless salmon.

The salmon pack from the river last year was 71,000 cases worth $2.5 million.



The New York Times April 1, 1964

Dry areas are underlined

General Says Alaskan Quake Halted Warning System

TOKYO, April 30 (AP)— Gen. John K. Gerhart, commander in chief of the North American Defense Command, said today a power failure during the Alaska earthquake last month had knocked out the nation's radar warning system against surprise attack for seven minutes.

General Gerhart's disclosure to reporters contradicted a Defense Department announcement shortly after the quake that the warning system had continued to function normally.

General Gerhart said that generators at the warning installation at Clear, Alaska, had broken down, but that power had been swiftly restored.

"We cranked up and made the necessary repairs," he said.

The general is comleting a tour of United States bases in Asia and the Pacific.

The New York Times

WASHINGTON, Aril 30— The Pentagon said today that "at no time during the Alaskan quake was there a loss of warning capability of any operational significance."

A statement said that the "site at Clear, Alaska, lost power for six minutes due to a malfunction, but coverage came from other parts of the system."

"Communications were never lost between North American Air Defense, Alaska, and all operational units within Alaska, "including the site at Clear," it said.

Alaska Centennial: U.S. to Invite U.S.S.R.

By the Associated Press

Fairbanks, Alaska

The Soviet Union will be invited to participate in ceremonies marking the 100th anniversary of the United States's purchase of Alaska from Russia.

The centennial occurs in 1967.

The invitation will be extended by Paul Greimann of Fairbanks, who plans to visit Moscow on a people-to-people tour in July.

Booklet on Quake Published

"Alaska's Good Friday Earthquake, March 27, 1964," is the title of a new Geological Survey circular published recently. The 35-page booklet contains photos and text by many of the nation's leading geologists. It is available from the Geological Survey, Washington 25.

ALASKA QUAKE STUDY ORDERED BY JOHNSON

The New York Times

WASHINGTON, May 3 — President Johnson ordered today a comprehensive scientific and technical account of the Alaskan earthquake and its effects.

"A scientific understanding of the events that occurred," the President wrote, "may make it possible to anticipate future earthquakes, there and elsewhere, so as to cope with them more adequately."

The President's order was in a letter to Donald F. Hornig, his special assistant for science and technology.

He said that Mr. Hornig's office would coordinate the work on the quake and its effects by the Coast and Geodetic Survey, the Geological Survey, the National Science Foundation, the Air Force, the Corps of Engineers and other agencies.

The Alaskan earthquake occurred March 27. The quake and its side effect of tidal waves took more than 100 lives and did property damage estimated at about $500 million.

Magnetic Effect Recorded Hour Before Alaska Quake

LONDON (Science Service) —A disturbance in the earth's magnetic field occurred one hour and six minutes before the destructive Alaskan earthquake last March 27.

This recorded increase could be related to the earthquake, George W. Moore of the United States Geological Survey suggests in the British scientific journal, Nature.

He said the magnetic event preceding the Alaskan earthquake could have resulted from changes in the structure of rocks due to a build-up of stress. If future observations show magnetic effects before other earthquakes, it might lead to a way to predict temblors before they occur.

The Japanese have been investigating the possible correlation between magnetic and seismic effects for many years without success.

Fur Seal Treaty Praised

MOSCOW, Feb. 28 (AP)—A Soviet zoologist, Viktor Arsenieve, praised Canada, Japan and the United States today for refraining from killing fur seals on the open seas. Such killings were banned in an agreement in 1957 covering the North Pacific. A new convention by the Soviet Union, the United States, Japan and Canada is to be ratified shortly.

Kennecott Copper Buys Claims To Large Deposits in Alaska

The New York Times

FAIRBANKS, Alaska, Jan. 13 — The Kennecott Copper Company, in an estimated $3 million transaction, has purchased a large group of mining claims to extensive copper deposits near the village of Kobuk, above the Arctic Circle in northwestern Alaska.

Phil Holdsworth, commissioner of the Alaska Department of Natural Resources in Juneau, has hailed the sale as "a real success story" for an old-time, hard-working Alaskan prospector, Rhinehart Berg of Kotzebue. He had worked the area for many years before options to his claims were taken up by the Bear Creek Mining Company, a Kennecott subsidiary.

Mr. Berg and his partner, John L. Bullock, formerly of Kotzebue, were each paid $1.3 million for their claims, according to other principals in the transaction.

Mr. Berg is now in New York, while Mr. Bullock makes his headquarters at Vancouver, Wash., where he operates tugs and barges on the Columbia River.

Mr. Holdsworth described the claims as containing chalcopyrite, bornite, and chalcotite, the same occurring in copper minerals, representing about 2 per cent of the ore body. He said this was a little better than twice the grade of Kennecott's holdings in the Southwestern United States.

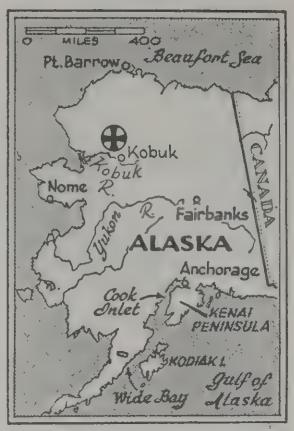
The company is reported to be studying the means for developing the ore deposits and overcoming the transportation problems. The region lies about 200 miles northeast of Nome and about 300 miles northwest of Fairbanks. The Kobuk River, navigable by small craft, flows into Kotzebue Sound, which is ice-locked most of the year.

The wooded region lies 20 to 30 miles above the Arctic Circle and is characterized by its rugged, small hills rising to elevations as high as 500 feet. The area contains many small lakes.

Charles Herbert, deputy commissioner of natural resources at Juneau, a well-known consulting mining engineer and one of the principals in the sale, said the transaction involved about 200 claims in all.

Mr. Berg and Mr. Bullock were members of a group identified as the Wallis Whitney group, in which they held a 50-50 interest. They also were members of a second group in which they held a one-sixth interest.

Mr. Herbert, a member of the second group, said each of the principals received about $100,000 for their claims.



The New York Times Jan. 14, 1964
Area of mine claims (cross)

Title to the claims has been placed in escrow in Salt Lake City, headquarters of the Bear Creek Mining Company, Mr. Herbert said.

The exploration company has conducted operations in the Kobuk area for about seven years. At times its summer camp numbered from 30 to 60 men. Geologists utilized helicopters to conduct their search. Extensive diamond drilling was carried on to test ore depth.

Mr. Berg had prospected the Kobuk region for a number of years before his claims were optioned to the Bear Creek Company. Originally he was said to have been interested in uranium before he developed the copper prospects.

A long-tim Alaskan, Mr. Berg originally worked out of Chitina, on the Copper River in south central Alaska, near the scene of the Kennecott Copper Company's one-time operations which closed down in 1938. The company had operated a mine and smelter near McCarthy, and operated the fabled Copper River & Northwestern Railroad to the mines from Cordova. The operation was closed down as the value of the copper ore declined on the world markets.

HUNTERS RESCUED FROM ARCTIC ICE

BARROW, Alaska, April 23 (AP) —Four polar bear hunters, two of them injured, were rescued Wednesday from the Arctic icepack 85 miles northeast of here, where they spent more than 48 hours after making a forced landing.

They were picked up in a light plane and flown to a larger plane on smoother ice nearby, which flew them to Barrow. They left behind their two damaged planes and a bear they had shot.

ARMY GROUP FILLS ESKIMOS' CAVITIES

The New York Times

FAYETTEVILLE, N. C., Feb. 29—Men of the Army Fifth Special Forces Group filled cavities for many Eskimos and dug others for Eskimo communities.

These civil activities were performed in the group's cold-weather military training this winter in Alaska. The group, from Fort Bragg's Special Warfare Center, has been working there in late January and February with the Eskimo Scouts and Alaska National Guard.

Army Special Forces is a guerrilla and counter-guerrilla training outfit. Each member is trained in field medicine, among other specialties.

In the weeks they traveled by dogsled among remote Eskimo villages, members of the dental team performed about 400 extractions and fillings. The medics trained the villagers in first aid, gave medical treatment and left behind a trained midwife in each village when their work was finished.

Meanwhile, Special Forces demolition experts combined their training of Eskimo Scouts with contributions to public works. They blasted into the frozen Alaska earth, which resists pick and shovel, to dig craters for refuse disposal near each village.

Infant Diet Deficiency Laid To Early Weaning in Alaska

ANCHORAGE (Science Service)—Eskimos and Indians may be giving up breast feeding too quickly, the Arctic Health Research Center here reports.

A survey of dietary practices among residents of selected native Alaskan villages showed deficiencies in infant diets traced to unsupplemented bottle feeding instead of breast feeding.

Analysis of 555 infant food intake records showed that many babies got only diluted canned milk from 2 to 8 months of age. Sufficient iron, calcium and essential vitamins such as thiamin, niacin and ascorbic acid were lacking.

Dr. Christine Heller, nutritionist at the Public Health Service's center, said breast feeding should be continued in the villages where availability of supplementary feeding supplies are limited.

Arctic Strait Passable

Narrowing to a mile in places, Bellot Strait courses for 15 miles between Boothia Peninsula, the northernmost point on the North American mainland, and Somerset Island. Ice jams and tidal currents make the passage tricky, but the strait is deep enough for large vessels.

Theory Linking Hotter Sun to Ice Ages Is Backed

By WALTER SULLIVAN

A study of sediment layers collected from 84 locations in the Arctic Ocean and nearby waters has revived the hypothesis that the most recent ice ages may have been caused by an increase — rather than a decrease — in the sun's heat output.

This proposal was made, between the World Wars, by Sir George Simpson. He said warmer sunlight would evaporate more water from the tropics and cause the atmosphere to churn more vigorously.

Consequently the transport of moist air to the polar regions would increase and snowfall would become increasingly heavy. At present precipitation on polar lands is typically meager. More snow would feed the glaciers, causing them to spead over the continents and dump vast numbers of icebergs into the Arctic Ocean.

The only large escape route for this ice would be between Greenland and Scandinavia. There, according to the Simpson hypothesis, the bergs must have charged southward like stampeding cattle. The effect would be to cool the entire northern Atlantic.

The new study is reported in today's issue of the journal Science by a team from the Lamont Geological Observatory of Columbia University. David B. Ericson was the chief investigator. The report is also signed by Dr. Maurice Ewing, head of the observatory, and Goesta Wollin.

The research dealt with 84 "cores" obtained by driving a tube as deeply as possible into the ocean floor at each station.

Some cores were collected more than a decade ago when American scientists first began conducting research from ice floes on the Arctic Ocean.

Since then, such drifting stations have wandered over much of that ocean—a research technique initiated by the Russians in 1937. The other cores were obtained from ships.

Cores from the region between Greenland and Scandinavia are rich in rocky material that was clearly picked up by glaciers, as they flowed over land, and carried to sea in icebergs.

Hence, according to Mr. Ericson, ice was forced south in this region even though the prevailing current is northerly. He believes this lends support to the Simpson hypothesis.

Another ice age hypothesis has been advanced by Dr. Ewing and a colleague, Dr. William L. Donn. It links the ice ages to periodic absence of ice on the Arctic Ocean. If that ocean were ice-free, they reason, winds crossing it would become moist, and snows on nearby lands would be heavy.

Gulf Stream water, flowing north from the Atlantic, would keep the Arctic Ocean unfrozen until enough water was loaded onto the continents in the form of ice and snow to greatly lower sea levels.

This would hinder the entry of warm water into the Arctic Ocean and allow it to freeze, halting the ice age until the oceans regained their original level.

The core studies reported by Dr. Ewing and his coworkers appear inconsistent with such a theory. The Arctic Ocean seems to have been jammed with ice during the last ice age. In fact, the absence of a certain tiny sea creature from deposits laid down at that time in Bering Strait suggest the area was blanketed with a solid ice apron.

The creature, known as Globigerina pachyderma, thrives in the cold polar waters, but it needs sunlight. The report suggests that the ice was so thick that adequate sunlight could not penetrate it.

Elsewhere in the polar sea, the number of shells left in ice layers by such creatures was so scarce that the ice there seems to have been heavy enough partially to darken the waters beneath it.

The cores have also contained fragments apparently produced by ancient volcanic eruptions, including some under the polar sea. The cores ran up to 16 feet in length, thus representing deposits laid down over many thousands of years. It is said to be the largest collection of cores from this region studied to date.

David B. Ericson, right, supervises the splitting of a core of sediment taken from the floor of the Arctic Ocean in a study concerning the origin of the most recent ice ages.

ICE-AGE DEBATE—

Several years ago two American scientists proposed a startling explanation for the most recent ice ages. They said they occured when, in a cyclic process, the Arctic Ocean was free of ice. Evaporation from the open ocean produced clouds that dumped heavy snows on near by lands.

The proponents of this idea were Dr. Maurice Ewing, director of Columbia University's Lamont Geological Observatory, and Dr. William L. Donn. Now one of Dr. Ewing's coworkers at the observatory has challenged this concept on the basis of samples of sediment from the ocean floor.

David B. Ericson says a dearth of microscopic sea-life skeletons in material laid down during the last ice age points to a solid ice cover. Drs. Donn and Ewing, on the other hand, believe the skeletons are scarce because drifting chunks of ice "rafted" large amounts of sand from the continents. The resulting rain of sand into the bottom was so heavy, they say, that the skeletons are correspondingly scarce.

U.S. TO RESUPPLY BASES IN ARCTIC

A 20-Ship Fleet Will Begin Annual Task in June

The 14th annual resupply mission of military installations in the Arctic will get into full swing by mid-June, the Navy's Military Sea Transportation Service reported May 9

The first vessel in a fleet of about 20 dry-cargo ships and tankers to head into the ice-choked northern waters will be the Redbud, a 180-foot light cargo ship. She is scheduled to leave here June 8, and, as in former years, will discharge such preparatory chores as replacing aids to navigation and rehabilitating undersea petroleum discharge pipelines.

The first units of the main fleet, to consist of eight dry-cargo ships and about a dozen tankers, are scheduled to head north from here about a week later for such out-of-the-way ports as Goose Bay, Labrador and Sondrestrom and Thule, Greenland.

The merchants vessels will be escorted by three icebreakers, the Coast Guard's Westwind and the Navy's Atka and Edisto, to assure delivery of 75,000 tons of dry cargoes and 2 million barrels of petroleum products by October.

Rear Adm. Frank L. Johnson, the service's Atlantic Area Commander, is in charge of Task Force 6. He is scheduled to leave here Monday by air for a five-day tour of United States bases in the Arctic.

He will be accompanied by Read Adm. William S. Post, the service's deputy commander, and is scheduled to visit ports and air bases in Greenland, Labrador and Newfoundland.

The annual supply operation will also involve the deployment of Army stevedore personnel who will handle the over-the-beach cargo discharge operations and the small craft needed for this type of cargo handling at places where no ports exist.

55% of Indians, Eskimos In Canada Are Catholics

OTTAWA (Canadian Press) —A majority of Canada's Indians and Eskimos reported in the 1961 census that they were Roman Catholics, the Dominion Bureau of Statistics reported recently.

The bureau also said that most persons of French, Italian and Polish origin belonged to this denomination, which accounted for 46 per cent of the population in 1961.

Of the 220,121 Indians and Eskimos, a total of 121,148 or 55 per cent were Roman Catholics. A total of 55,078 were Anglicans.

The United Church, second largest denomination in Canada, predominated among persons of British Isles and Netherlands origins.

Secrets from Cold

THE EARTH'S HISTORY during the past 800,000 to 1,000,000 years has been characterized by the alternate advance and retreat of vast, continental ice sheets, such as the one that now covers Antarctica. There were at least four such major advances, during which a quarter to a third of earth's land surface was blanketed with ice estimated to have been as much as 10,000 feet thick. The last of the great advances took place about 18,000 years ago. At that time, the continental ice sheet in the New World reached a point about 150 miles south of Cleveland, Ohio, and in the Old World reached as far as London, Amsterdam, and Berlin. The ice then began to retreat. Rapid final recession from North America, Europe, and Siberia began roughly 11,000 years ago. However, great ice sheets remained in Greenland and Antarctica.

The earth warmed up steadily from 11,000 years ago to about the end of the Stone Age, some 4,000 years later. During this climatic optimum, glaciers receded to their smallest size, but they began to expand again about 500 B.C. Another recession was apparent during the time of the Roman Empire, and was followed by yet another slow advance that lasted until approximately A.D. 1600. From 1600 to the 1850's the advance became more rapid, and actually threatened towns and farmland in the European Alps. Before there was any widespread destruction, however, the ice began to recede and, with local exceptions, has been melting continuously ever since. Because the earth has been getting somewhat warmer for the past hundred years, investigators at the beginning of the International Geophysical Year expected that the Antarctic ice-cap would be found to be shrinking. This does not seem to be true. It has been found that there is more ice in Antarctica than was formerly believed, and this ice is accumulating in many places at rates varying from twenty-two inches a year at Little America to seven inches a year at the South Pole. Although there is a compensatory discharge into the sea, there is no evidence that the discharge is greater than the accumulation.

Antarctica, therefore, can be thought of as representing a "fossil Ice Age." The snow and ice that were laid down in most parts of the world during the great glaciations of the Pleistocene have melted away, and the layers are lost forever. But in Greenland and in Antarctica, it may still

Storage

Messages from the past are read in polar snow and ice

By William J. Cromie

Sno-cat's tracks furrow snow surface on a vast ice shelf in the Antarctic.

be possible to study the variations in temperature and precipitation that led up to and succeeded these drastic climatic changes of the past.

There are many theories that attempt to explain these changes, but none of them is completely accepted. Most theories point to variations in solar radiation; whether these variations arise from changes in the sun's heat output, or from changes in the position or the reflecting power of the earth is an open question. The answer to what caused the ice ages may not be found in studies of the deep ice, but an understanding of how these unknown mechanisms affected the environment is to be found there, and to understand effect is to go a long way toward discovering cause.

The study of ice is of growing importance in the consideration of current meteorology, historical geology, and the world's geographic and economic future. Meteorologically, in the simplest possible terms, when there is enough ice it affects the weather. It is in Antarctica, called "the world's greatest cold air factory," that most of the weather of the Southern Hemisphere is generated. In the Northern Hemisphere, the source of most cold air masses is the ice-covered Arctic Ocean. Intense low-pressure areas in the Arctic cause rain and turbulence as far south as the Caribbean Sea. There is evidence, too, that the influence of Antarctica extends to the Northern Hemisphere.

Ice affects the weather, but weather also affects the ice. The surface of the snow becomes the same temperature as the air. As air temperatures vary, the changes progress downward through the snow. In Antarctica, a cold snap that occurred some weeks in the past can be detected by an abnormally low temperature in snow layers a certain distance below the surface.

As the snow accumulates, succeeding layers are buried deeper and deeper each year and are eventually compacted into ice by the overlying weight. In this way an icecap is built up of layers, or beds, that may be a fraction of an inch to a few inches in thickness. These layers are revealed in cross section when a pit is dug into the snow. Taking the temperature of these layers in Antarctica is like leafing through old newspapers for local weather information.

Nor is this all. Temperature effects

ELECTRONIC CREVASSE-DETECTORS on long beams are pushed ahead of a Sno-cat, *above*. Temporary station, *below*, near the center of Ross Ice Shelf, was site of three-day series of gravity readings to record rise and fall of the floating shelf in response to ocean tides. Glaciologists at the lower right determine the hardness and the layering of surface snows.

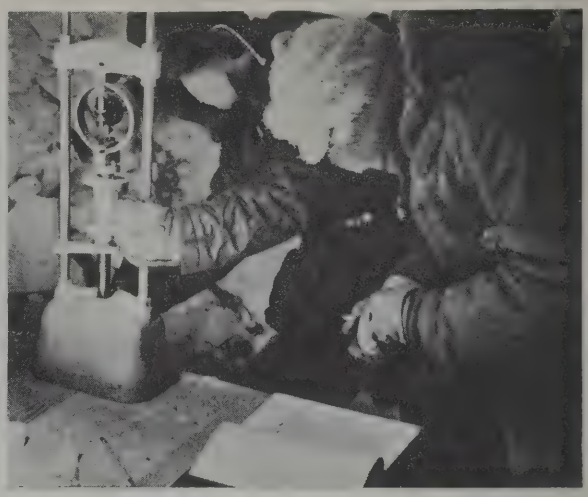
are exerted on the ice in such a way that a permanent record of local climate is impressed in the layers. At a depth of about thirty-three feet, for example, the temperature stabilizes at the average annual air temperature for a given location. This phenomenon is extremely useful for ice studies. Instead of establishing forty weather stations from the southern shore of the Pacific Ocean to the South Pole, collecting temperature data for a year, and averaging them for the mean, two men with strong backs and electric probe thermometers can traverse the ground in a few months and obtain the information with forty single measurements. A strong back is a prerequisite, because each thirty-three-foot probe hole is usually drilled by hand.

Just as climate and ice influence each other at present, so must they have done in the past. Historically, climate is "fossilized" in the layers of snow and ice. Examining ice beds is much the same as examining rock beds. One difference between the two is in the time of formation. A rock stratum is laid down in thousands or hundreds of thousands of years; a snow stratum is deposited each season.

There are usually two seasons for deposition—summer and winter. Summer snow is different from winter snow. By measuring density and snow grain size, it is usually possible to distinguish one season's snow from another. The size of the snow grains is determined with a plastic card on which a grid is laid out in 1 mm. squares. The card is inserted into the layer of snow and the average grain size is quickly estimated by comparing grains with the ruled grid. This information, in conjunction with the layer's thickness, provides an idea of how wet and cold the season was when the layer was deposited.

Measurements of density and grain size yield information concerning changes of climate in the past, while temperature measurements reveal how the weather is changing today. Thus, the wall of a snow pit describes past climates in each stratum. The top stratum is today; it represents today's weather and this season's snowfall. The bottom strata—if we could reach them—might hold clues to the original formation of the ice and, in places like Antarctica and Greenland, to what the world was like tens of thousands of years ago.

STRAIN GAUGES measure distortion ice pressure causes in the walls of a South Pole ice tunnel.



COMPRESSION strength tests of ice cores show how much pressure they resist before breaking.

Glaciologists, working for a year at a time at permanent stations in Antarctica, have extended our knowledge back about 100 years by digging snow pits to depths of from 60 to 110 feet. In 1956, the U.S. Army Engineers modified an oil well drilling rig so that it could take cores of ice instead of rock. A corer has a hollow barrel; the cutting edge at its bottom cuts out a cylindrical section of ice, which is then brought up intact inside the barrel. By this method the layering is undisturbed and can be examined conveniently on the surface. The drill penetrated to 1,438 feet in Greenland and to 1,013 feet in Antarctica. Preliminary analysis of cores obtained gave detailed data on the climate of Greenland for the past 600 years, and of Antarctica for about 2,000 years, because there is less precipitation there.

DEEPER penetration was limited by the presence of air enclosed under pressure far down in the ice. As this air was released by drilling, it shattered the cores and walls of the hole. The air is trapped in bubbles, and if enough can be brought to the surface it can be dated and analyzed to see if ancient man and other animals breathed an atmosphere different from that of the present day.

Recently, glaciologists drilled into Greenland's ice sheet at a spot some 6,500 feet thick—with a new device that melts its way downward. The thermal element is ring-shaped. As the ring melts the layers, the central column of ice remains intact, and a pipe above the ring envelops and holds the core. The thermal drill is intended to penetrate to a depth of two miles. It could thus reach the bottom of both

UNVARYING pressure is applied continuously to compacted snow to test samples for deformation.

LONG CORERS rest on a table in laboratory of snow mine. Short cores are kept on wall shelf.

the Greenland ice and, in some locations, the Antarctic ice.

It is important to learn exactly when a layer was deposited, when periods of heavy snow accumulation occurred, and how long they lasted. Here scientists turned to tritium (H^3), a radioactive isotope of hydrogen. In a fixed time tritium decays to normal hydrogen in snow and ice, just as uranium disintegrates to lead in rock. Tritium is suitable for dating ice up to 100 years old. In addition, it can be used in the upper layers to monitor fall-out. If dates of upper layers are determined by other radioactive elements or by layer counting, the expected tritium content for that age can be compared with actual tritium content, and the difference can be attributed to radioactive contamination from fall-out.

BESIDES monitoring fall-out by this method, scientists can obtain a fall-out record dating back to the time the first atomic bomb was detonated. Studying radioactive contamination in various areas of the earth also yields valuable data on the circulation of the atmosphere, which carries the debris from place to place.

The ratio of carbon 14 to normal carbon in the carbon dioxide of the air trapped in ice can be used to date ice as old as 45,000 years. Carbon dioxide in ice can also be used as a measure of industrial contamination of the atmosphere. This is done by a comparative analysis of recent layers and those that were deposited in preindustrial times.

When snow falls, everything suspended in the air falls with it, including dust and micrometeorites, plant spores, bacteria, and volcanic ash. In the ice cores taken in Greenland, the 1912 layer was identified by ash from Katmai, the Alaskan volcano that erupted that year. The ash from the 1883 Krakatoa explosion is being searched for at depths of 150 feet in Greenland and 60 feet in Antarctica. Similarly, unrecorded eruptions of volcanoes in isolated parts of the world can be dated if the age of the ice is known. This is done by comparing the mineral content of ash taken at the site of a suspected volcano with that present in the ice. The size and shape of the samples of ash grains found at the two sites can also be compared.

Once a reference level has been established, it may be a comparatively

simple matter to count summer-winter pairs between the dated layer and any other point on a core or a pit wall. Below about 300 feet, however, the layering becomes obscured as a result of pressure. At greater depths, summer layers can be separated from winter layers by the relative amounts they contain of normal oxygen 16 and its heavy isotope, oxygen 18. The ratio of the two forms of oxygen varies with the rate of evaporation. The amount of heavy oxygen 18 will be greater in layers deposited during the warmer temperatures of summer than in those laid down during the winter. This technique enables ice scientists to determine the relative temperatures at which the ice was deposited and seasonal temperature variations where layering has been destroyed.

By all these means, it becomes possible to construct a detailed picture of past climates. The oldest layers that can be reached by present techniques, excluding the new thermal drill, date back barely 2,000 years. But in Antarctica the ice has been accumulating for perhaps 1,000,000 years. If glaciologists cannot bring up a sample of these deeper layers, they may at least be able to ascertain how thick the ice is, what quantity of ice is actually there, and perhaps what lies beneath it.

These questions can be answered by seismic reflection and refraction techniques. After the temperature has been read at the bottom of a temperature hole, the hole is loaded with dynamite. Explosive sound waves then go where the glaciologist cannot. When such sound waves were recorded and studied during the IGY, it was found that much of the land beneath the Antarctic ice sheet was below sea level. This finding has led to the discovery that Antarctica is not a single land mass, but a small continent and an offshore archipelago.

This seismic work has revealed that there is much more ice at the bottom of the world than was formerly supposed. Recent measurements show that the average thickness over an area of 5,000,000 square miles is between 6,500 and 8,000 feet, or as much as double the amount predicted by some glaciologists prior to the International Geophysical Year.

Thus, a number of clues to past meteorological and geological conditions lie buried in the ice. There, too, might possibly lie some indications of our geographic and economic future.

The average temperature during the Pleistocene glaciations is believed to have been 6° to 9° F. lower than at present. During the warmer, interglacial periods, it was apparently 3° to 4° F. higher. If these estimates are correct, we are now probably in a transition from a glacial to an interglacial period. The oceans now rise roughly four and a half inches per century.

Locked up in Antarctica is enough water to raise the level of the oceans by approximately 200 feet. The great weight of this amount of water would, after a considerable time lag, push the ocean floors downward, so that the net rise in sea level would be about 130 feet. It is a logical assumption that the Antarctic icecap is self-perpetuating and that, because of its location at the South Pole and its high altitude, it will remain stable throughout the interglacial age. However, even if it should melt at the same rate as other glaciers are shrinking now, it might be approximately 10,000 years before all the ice became water.

On the other hand, the melting of only a relatively small portion of Antarctic and Greenland ice could have a significant geographical and economic effect. A large percentage of the world's population is concentrated in low-lying coastal areas where large seaport cities have developed. A rise of only twenty-five feet in sea level would displace a considerable part of the world's population and endanger property that comprises much of the wealth of most maritime countries. A much smaller rise would inundate many low areas, such as Holland and the atoll islands of the Pacific, and would necessitate expensive reconstruction of many waterfront facilities throughout the world. Therefore, if the Antarctic ice should begin to melt, or the melting in Greenland should be accelerated, the change in the level of the sea could produce far-reaching consequences in the future.

While Antarctica is a large ice-covered land mass that is surrounded by water, the Arctic Ocean is an ice-covered sea surrounded by land. Water stores heat more efficiently than land, hence it is warmer in the Arctic. The floating ice there is only ten or eleven feet thick, compared to the great depths at the opposite end of the earth. There is evidence that the Arctic is warming up faster than the Antarctic, and recent data indicate that the northern ice has been melting for 400 years. A few more generations could conceivably see the Arctic Ocean at least partially free of the present volume of ice.

Some scientists think that such a melting would quickly precipitate a fifth Ice Age, as it would provide a vast new source of precipitation. However, if this did not prove true, North America and Eurasia would face each other across an open Arctic Mediterranean. This potential advantage to commerce and transportation might change the economic structure of the entire Northern Hemisphere.

All the ice in the Arctic Ocean does not have to melt to produce at least one major advantage. An open sea north of Canada—an ice-free Northwest Passage—would open up a new trade route with tremendous possibilities. It could make the resources of the Arctic more accessible and might open it to industry and even to agriculture.

On the Siberian side, the Russians have utilized the Northeast Passage since 1934. During the summer months, convoys move in and out of new Siberian seaports, and this former wasteland is on its way to becoming a populated industrial area.

There is another effect to be considered. If large areas of the Arctic Ocean become ice-free for even part of the year, a great deal more of the world's water areas will be available as a source of precipitation. The Northern Hemisphere would become wetter and warmer. This could make habitable areas that are now too cold or too arid, thus increasing the amount of productive land, food, and living space available for the world's rapidly expanding population.

If we are to predict what will happen to the world's climate in order to take advantage of, or to guard against, future events, we must understand how the mechanisms that change our climate operate. Icy regions are among the few places where we can observe how climate has changed in the past and obtain clues to how it will change in the future. Once we understand these changes and can predict them, we will have come far toward controlling both climate and sea level.

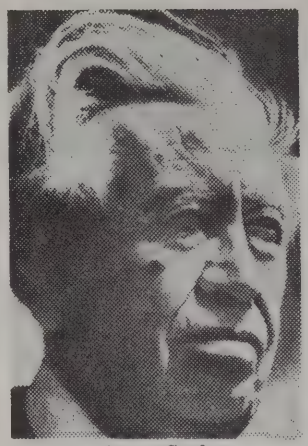
Stefansson of the Arctic

DISCOVERY: The Autobiography of Vilhjalmur Stefansson. 411 pages. Illustrated. McGraw-Hill. $7.50.

By Maurice Dolbier

AS A young man, Vilhjalmur Stefansson was deeply impressed by a sermon he heard at Harvard. The preacher was Samuel McChord Crothers, and the theme of his address was that since so many schools and colleges were teaching things that weren't so, there should be an educational institution established where students could "unlearn."

Though, to Stefansson's regret no such school was even formed, he himself conducted, for more than half his long lifetime, a course in "unlearning" about the Arctic. During his years of exploration in the Far North, he braved some dangers and endured some discomforts, but on the whole he found the Arctic a friendly place, rich in resources, and in his



Vilhjalmur Stefansson

writings and his lectures he extolled its climate, its people, its potentialities. When the head of a lecture agency told him that "people wanted to hear about heroism, danger and hardship, not flowers, sunshine and a surplus of food," he changed agencies, and continued his mission as a "salesman for the North."

Stefansson was both adventurer and prophet. He discovered the last unknown lands in North America; he lived with a Stone Age people and found lessons for modern man in their way of life; he foresaw, and did much to bring about, an age of transpolar air routes and of submarine travels under the Arctic ice. His specialized knowledge was called upon by the armed forces during World War II. He gathered the greatest collection of books and other writings on the Arctic in the Western world.

His autobiography, completed shortly before his death two years ago, is a candid and charming work, interesting not only for its account of his Arctic explorations (treated more fully in such earlier books as "My Life With the Eskimo" and "The Friendly Arctic") but for its description of his experiences in the frequently less-friendly (and possibly misnamed) Temperate Zone.

"In the 1920s," he writes, "a sort of infighting through character assassination was practiced by those who engaged in the extremely competitive vocation of polar exploration." Stefansson was a victim of this, beginning in 1912 when a Seattle reporter wrote a fantastic story under the head AMERICAN EXPLORER DISCOVERS A LOST TRIBE OF WHITES, DESCENDANTS OF LEIF ERICSON and continuing long after the reporter's errors had been exposed. In his last years, he and his wife were exposed to an attempt at character assassination from another source, in the era of McCarthy.

TO THE TOP OF THE WORLD: The Story of Peary and Henson. By Pauline K. Angell. Illustrated. 288 pp. Chicago and New York: Rand McNally & Co. $4.50.

IT is 55 years since Robert Peary and his Negro fellow-explorer Matthew Henson and a group of Eskimos became the first persons to reach the North Pole. The question still teases: why did Peary take Henson with him? Peary engaged Henson, who had been a cabin boy and a valet, as his body servant on a trip to Nicaragua; Henson subsequently accompanied Peary on journeys to the far North. Mrs. Angell tells the story of their meeting and long association, the trek to "the top of the world" and what happened after the discovery.

She has not tried to soften the picture of Peary in assessing his reasons for taking Henson instead of other members of the party to the Pole or in describing Peary's failure even to mention Henson in his published account. She does not refer to a theory that once had some currency: that Peary took Henson and Eskimos along because he wanted to be the only white man there. The book recreates again the drama and excitement of polar adventure and is liberally filled with photographs and maps.

PHILIP BENJAMIN.

She Lived to Tell

HEY, I'M ALIVE! By Helen Klaben with Beth Day. 206 pp. McGraw-Hill, $4.95.

By BURT TUTTLE

A lot of the philosophy of human existence and endurance is summed up in the title of this book. As expressed in the vernacular by Helen Klaben, a 21-year-old Brooklyn girl, after she and the pilot of a small plane crashed in the Yukon wilderness in Canada Feb. 4, 1963, the exclamation sets the pace of her own personal adventure story.

"Okay, Helen, here it comes," she told herself when fuel from an auxiliary tank failed to reach the carburetor in time and the powerless plane glided down into a mountainside of trees. When she regained consciousness, she exclaimed, amazed that both she, with a broken left arm, split chin and right foot wedged in wreckage, and Ralph Flores, the pilot, who suffered a broken jaw and ribs, had survived.

Their survival for 49 days, with food enough only for the first nine, in temperatures that went down to 45 degrees below zero, is a real-life example of Robert Service's "Law of the Yukon . . . That surely the Weak shall perish, and only the Fit survive."

They continued to exist on snow water heated over firewood cut with a hammer and chisel until Flores recovered sufficiently to make his way to an open space where he tracked out a huge S.O.S. in the snow. A passing bush pilot saw that and their smoke and mirror signals and arranged for their rescue, just before a blizzard obliterated the S.O.S.

Miss Klaben, who comments that she was a bit overweight at 140 pounds when she left Fairbanks to fly out of Alaska, and meant to start dieting, weighed less than 100 when rescued. Flores rejoined his wife and children in San Francisco and the author is back in New York continuing her studies at Columbia. Her book, a feminine saga on courage, deserves to be selling well and racking up a good circulation figure

Norwegian Skiers Cancel Expedition to North Pole

OSLO, May 10 (AP)—Bjoren Staib and his Norwegian expedition have abandoned their attempt to ski across the North Pole.

Mr. Staib radioed he was giving up 250 miles short of the pole. He said his group would encounter too many open stretches of water and too much broken ice on the return trip in June.

Mr. Staib said he and his five companions had traveled 375 miles in 41 days from the Canadian communications base Alert to the United States ice island station Arlis II.

North Pacific Seals Topic Of Conference in Moscow

MOSCOW, Feb. 24 (AP)—Specialists from four nations opened a conference in Moscow today to decide how many seals on the islands of the Bering Sea will be kept alive each year.

Representatives from Japan, the United States, Canada and the Soviet Union, all of which have a share in the seal herds of the North Pacific, attended the meeting.

The four nations also share the responsibility of protecting the seals from poachers. The United States protects the biggest herds, those on the Pribilof Islands in the Bering Sea.

Glaciers Move Swiftly

Antarctica's glaciers often move at the unusually swift pace of 600 yards a year, the National Geographic says.

OIL STILL HUNTED ON ARCTIC ISLES

2d Attempt Is Being Made 900 Miles from Pole

The New York Times

EDMONTON, Alberta — On Bathurst Island, 1,500 miles north of Edmonton and only 900 miles short of the North Pole, a wildcat oil-drilling operation is being supervised by a determined 32-year-old Canadian.

Keith Leigh, superviser for the Commonwealth Drilling Company, said, when winter was closing in, that work on the island was "no tougher than in the rugged foothills of southwestern Alberta."

When he made that statement the long period of winter darkness around the clock was fast approaching. Nevertheless, a hole was being drilled at a steady rate and had reached a depth of 4,153 feet when drilling was halted.

On neighboring Cornwallis Island, to the east, the same winter conditions prevail, but the Lobitos Oil group's wildcat team also was boring—in late November. Lobitos plans to drill two wildcat wells on Cornwallis during 1963-64.

The Dominion and Lobitos operations are the second attempt to find oil in Canada's Arctic islands.

A 1961-62 venture on Melville Island found a dry hole.

The oilmen's persistence, in the face of tough conditions and heavy costs, can be explained only in terms of the potential of Arctic oil.

Carl Nickle, an Alberta oilman, summed it up this way:

"The Arctic Islands are, in terms of area and geology, one of the greatest unexplored oil and gas provinces left on earth. During the past four years, many millions of acres of Canadian Government permits have been acquired and geological and geophysical work has been carried out.

"The studies have confirmed the presence of favorable geological conditions, of many king-sized structures, and of encouraging oil and gas seepages."

"Plus factors," in addition to favorable geology, are the expectation that big pools of oil with huge reserves will be found a relatively short water-haul distance from major markets.

Bathurst and Cornwallis are about 3,000 miles from Montreal and the eastern United States seaboard and approximately the same distance from Britain and Western Europe by sea.

"Minus factors," in addition to the climate, include the relatively high costs of service and supply and the brevity—about three months a year—of the open-water period for surface shipping.

For each of the present ventures, massive amounts of equipment, fuel, chemicals and casing had to be moved by rail to seaboard and by ice-breaking freighter to the Arctic site In each case the move cost about $500,000. The total cost of each operation was originally estimated at $1 million.

SUMMER ROUTE AROUND CANADA: A Canadian ship will attempt to prove that voyages via the Northwest Passage are feasible in summer by taking the voyage outlined above. If weather is open, route through Melville Sound (dotted line) will be used for trip.

Canadian Vessel Will Pioneer Arctic Sea Route for Summer

TORONTO, March 6 (UPI)—A Canadian ship will attempt a round trip through the Northwest Passage next summer to prove its feasiblity as a "summertime Panama Canal."

Scott Alexander, a Canadian Arctic navigator, said the expedition would sail from Vancouver to Frobisher Bay and back again aboard the motor vessel Northland Princess.

The east bound voyage will entail passing around Alaska, through the Berlin Strait, across the Beaufort Sea north of Canada, and down Davis Strait, separating Greenland from North America, to the southern end of Baffia Island.

Mr. Alexander, president of the Northwest Passage Company and a veteran sailor of Arctic waters, will head the expedition. He said 20 sailors, scientists, technicians and adventuerers would take part.

The Northland Princess will be the first ship in history to sail both ways through the Arctic waterway in one season, Mr. Alexander said.

The expedition, called Passage Seven because the Northland Princess would be the seventh ship to make the passage in the last 38 years, will be sponsored by three Canadian companies interested in developing the Canadian Arctic — British-American Oil, Eldorado Mining and Refining, and Northland Navigatin of Vancouver.

"Our purpose is to prove that the passage is ice-free long enough and late enough in the late summer that normal ocean-going ships can use it as a shorter toll-free route between the East and West Coasts, and between the Orient and Europe," Mr. Alexander said.

This, he added, will open a door to more rapid development of the Canadian north.

Mr. Alexander said support and assistance for the expedition are also being provided by the Canadian government, the Arctic Institute of North America, Arctic Shipping, Ltd., and Canadian Pacific Arlines.

The Northland Princess is a 107-foot former submarine chaser. She is being borrowed for the expedition from Northland Navigation. Mr. Alexander said he was entirely confident that the ship could navigate the passage in perfect safety. He said:

"The only safe way to sail through the Arctic is to stay out of ice. In the last few years we've learned this is entirely feasible by using ice reconnaisance reports from Government aircraft equipped with radar."

The voyage, one way, is expected to take a little more than three weeks, at a cruising speed of about 16 knots.

If successful, the Northland Princess will become the first ship in history to sail the Northwest Passage in both directions in one season.

Existence of the passage, sought for centuries as a quick route to Asiatic trade and profits, was first proved by Roald Amundsen, discoverer of the South Pole, the National Geographic Society says. It took Amundsen three years — from 1903 to 1906 — to traverse the ice-clogged channels on the 70-foot schooner Gjoa.

But there was no sudden rush of traffic through the rugged, hazardous maze pioneered by Amundsen.

It was not until 1954 that a deep-draft vessel, the 6,000-ton Canadian icebreaker, Labrador, again completed the difficult transit.

In 1957, the Labrador repeated the performance, leading three United States Coast Guard cutters through from west to east. This time the ships traversed narrow Bellot Strait, the most southerly route.

Alaskan River Not Bridged

ANCHORAGE — The only large United States river not crossed by a bridge is the Kuskokwim in Alaska. It drains 50,000 square miles along its 540-mile route—and along its entire course has no dam to harness its power.

Dog Food, Moss And Snow Sustained Pair Lost in Yukon

Associated Press

WATSON LAKE, Yukon Territory, Jan. 8—Six pounds of dog food, scrounged from an empty trapper's cabin, helped sustain a couple through 30 days of hunger, pain and exhaustion while lost in bush country east of Watson Lake.

William Alexander McDiarmid, 43, a trapper, and his wife, Maggie, 25, were reported in good condition today after being flown here.

They left their cabin on Larsen Lake Dec. 5 to snowshoe to Smith River, 60 miles away. After a few days of blizzards and deep snow, they were lost.

"By that time my feet were frozen to the knees," McDiarmid said. "We knew our way back but weren't sure how much further we had to go.

"My nose kept bleeding; Maggie was fine.

"I was carrying 60 pounds; I had 31 marten, an ax, a hatchet, blankets and my rifle. We just couldn't keep up.

"We had macaroni on Christmas Day. I had a sardine sandwich and Maggie had some canned sausage.

"Our New Year's dinner was macaroni and canned sardines. Our food ran out and we ate moss and snow. We found six pounds of dog food in a cabin and ate that."

Bush pilot Bob Harrison, who was supposed to meet the couple at their cabin door, notified the mounted police. The mounties sent a plane out New Year's Day without success and Harrison flew over the area next day.

While flying over the snow, I suddenly saw snowshoe tracks and I followed them," Harrison said. "I saw a fire and a figure waving a blanket."

A ground party arrived the next day and fed the couple hamburger and stew.

"The only other bad time I had was in 1935 when I was just a kid," said McDiarmid, a trapper all his life. "Someone shot my brother and I had to break trail for 200 miles to get him to a hospital.

"We ran out of food and I shot two of our seven dogs so we could eat."

Planes With Rubber Tanks Carry Oil to Arctic Post

Rubber tanks used to hold fuel cargo in planes. Tanks in foreground have been emptied.

An imaginative method of transporting fuel oil by air has increased the capacity of the C-130B Hercules from 2,880 to 4,000 gallons.

The large cargo hold of the turboprop Lockheed aircraft has been fitted with five collapsible butyl rubber tanks. When inflated, they resemble sausage-shaped "blubber bags."

Each tank is seven feet long by four feet across and has an 800-gallon capacity.

The Royal Canadian Air Force, using the Hercules for the first time, recently airlifted 192,260 gallons of fuel to four far-northern weather posts in a continuous operation. Altogether, 1,690,000 pounds of cargo were flown to the Arctic stations.

In previous Arctic supply operations, fuel oil was carried in steel drums, each valued at about $5. As many as 6,000 drums were used in past operations by the R.C.A.F.

The new delivery-in-bulk method provides great savings in loading and unloading, aircraft wear and tear and manpower. It also eliminates the expense of the drums, which in some cases are cheaper to abandon than to return empty.

Under the new system, each bag has an oil line connected to a main line inside the aircraft. The bags can be inflated and deflated outside the plane. They were designed and manufactured in Canada.

ALL-PURPOSE GUIDE WRITTEN IN ESKIMO

OTTAWA (Canadian Press)—Most do-it-yourself manuals confine themselves to one subject but not the Q-Book.

In what other publication, for instance, could you learn about Canadian mining regulations, how to make a will, and how to deliver a baby? The Q-Book offers advice for about 60 different situations.

The 302-page book, written in English and Eskimo and produced by the Welfare Division of the Northern Affairs Department, is designed as a ready-reference for the developing Eskimo, telling him hundreds of things in the interest of safety, health, the law and economic success.

"Q" stands for qaujivaallirutissat, which means "something that will let you know more."

There is hardly a situation in which an Eskimo could find himself that isn't covered in the book. If someone tells him he should write a will, he can turn to page 200 to find out why:

"Sometimes the person holding the dead person's goods will not give them up without a paper certifying who is to get them. This is particularly true of banks."

The Q-Book tells how to care for gunshot wounds, the workings of banks and the value of women learning how to handle money:

"Women should learn about money. It is important because the family allowance is paid to the mother."

GLACIER ADVANCING IN CANADIAN NORTH

LONDON (Science Service)—A river of ice is moving rapidly toward the sea. The Otto Fiord glacier on the northwest coast of Ellesmere Island, north of the Canadian continent, shows signs of "catastrophic" advancement, according to G. Hattersley-Smith of the Geophysics Section of the Defense Research Board in Ottawa. No civilized area lies in its path.

On an airplane flight across the icy area last summer, the geologist noticed a highly disturbed appearance on the lonely rugged glacier. A study of air photographs taken in 1950 and 1959 showed that the glacier had moved rapidly and had pushed out into the waters of Nansen Sound as a floating tongue and broken off to form many icebergs.

Glaciers originate in high frozen lands of perpetual snow, where more snow falls than is melted off. After some snow evaporates or melts, it recrystallizes into compact granular particles that become packed hard by more falling snow.

Gradually the entire icy mass becomes so heavy that the pressurized snow at the bottom becomes plastic and the glacier begins to slip down the slope.

Vickers to Build Icebreaker

OTTAWA, June 22 (Canadian Press)—Canadian Vickers, Ltd., of Montreal, has been awarded a $18,719,075 contract to build a triple-screw icebreaker for the Canadian Coast Guard. The ship will be the most powerful conventionally powered icebreaker in the world, the Transport Department announced today.

Sachs Harbour is the only settlement on Banks Island in the Canadian Arctic, a wind-whipped land mass about the size of West Virginia.

ICEBERG HUNTERS GET NEW WEAPON

Air Patrol's Radiometers 'See' Through the Fogs

By WERNER BAMBERGER
The New York Times

Feb. 22

The Coast Guard's annual International Ice Patrol may score a scientific breakthrough this year and come up with a foolproof way of spotting dangerous icebergs from the air through the thick fog banks that engulf the Grand Banks area off Newfoundland.

The service's yearly hunt for these floating menaces to trans-Atlantic shipping in that area is scheduled to get under way at the end of this month.

The coming patrol marks the 50th anniversary of this annual effort, which was started in 1914 as a result of the sinking of the Titanic in April, 1912, after collision with an iceberg.

A service spokesman explained yesterday that the two Hercules C-130 aircraft assigned to the patrol would be equipped with microwave radiometers.

These electronic devices work on the principle that all objects give off radar-frequency waves according to their temperature, even if that temperature—as in the case of an iceberg—runs below freezing.

The temperature reflects the property of the object observed. As a result, Coast Guard observers hope the microwave measuring devices will enable them to differentiate between an iceberg and a ship.

Airborne radar, used by the patrol in the past, was unable to tell whether a radar target was an ice mass, a ship or a wooden-hulled fishing vessel.

The Grand Banks area, which is threatened every spring and and early summer by several hundred bergs drifting south, lies athwart of the main trans-Atlantic shipping lanes.

In addition, it boasts of heavy concentrations of fishing craft of many nations, including a growing number of Russian fishing vessels.

Other scientific gear to be employed and possibly refined during the patrol season will include airborne radiation thermometers said to be capable of reading sea surface temperatures; a small shipboard computer aboard the patrol's oceanographic ship, the Evergreen, and the regularly-scheduled broadcasting of radio facsimile charts of ice conditions.

The shipboard computer, it was explained, would simplify greatly the formerly tedious task of doing complex oceanographic calculations by hand and by slide rule.

In charge of the 1964 patrol will be Comdr. Glenn O. Thompson, who will make his headquarters at Argentia, Newfoundland.

The costs of operating the annual patrol, which usually lasts for several months, are borne by the 17 nations who are signatory to the 1914 International Conference for the Safety of Life at Sea.

In contrast to patrols of former years, ice detection today relies principally on aerial reconnaissance. However, two Coast Guard cutters, the Acushnet and the Cherokee, have been assigned to the patrol on standby status.

They may be called out to sea in the event icebergs drift far enough south into the Atlantic shipping lanes to require surface surveillance.

However, the Coast Guard does not expect a heavy iceberg infestation during the coming season.

Early aerial scouting off the coast of Labrador, it was reported, has located only 250 to 300 large bergs that may pose shipping hazards later on.

During a normal season an average of 400 bergs is expected.

CANADIANS URGED TO DEVELOP NORTH

VANCOUVER, B. C. (Canadian Press)—Canada's Northern Affairs Minister, Arthur Laing, thinks of the North in terms of educated Eskimos bold investors, high-risk capital and huge profits—and losses.

He told the British Columbia Chamber of Commerce recently: "It is imperative that we have new people, new personalities and new ideas in the North."

He said oil drillers already were looking for another "Arabia" in the Arctic islands and expected to spend $35 million before they found a drop of oil.

His department is trying to encourage new industry and new development, he said, adding:

"Canadians pay $40 million a year for northern development. It's time we started working on getting some of it back."

The minister also said he believed that the United States was eager to repave the Alaska Highway through Canada.

A "comfortable" Alaska Highway could funnel 750,000 tourists a year into Alaska and he estimated that they would "spend $95 million" on the way.

Mr. Laing said that if the United States was willing to assume all the repaving costs, Canadians should not oppose it through fear of loss of sovereignty.

They should remember that "the United States built the Alaska Highway during the war at a cost of $124 million. They built it quickly and they gave it to Canada for nothing at the end of the war."

U. S. WILL REMOVE REACTOR IN ARCTIC

Compacting Snow Squeezes Device Under Ice Sheet

By WALTER SULLIVAN
The New York Times

After spending millions of dollars to install a nuclear reactor inside the Greenland ice sheet and operating it for less than three years, the Army has decided to haul it out.

The immediate reason for the decision, which was announced several days ago, is that the reactor is being squeezed out of existence. The inexorable compression of Arctic snows, heaped one upon the other, turns the snow to ice and is shrinking the reactor tunnel.

Compaction of the snow surrounding the tunnel has lowered the roof many feet. In 1962 the roof was raised five feet to compensate for this effect, but the alteration has now been wiped out by further compaction. In addition, the weight of new snow is causing the walls to "flow" inward. The result is a slow narrowing of the tunnel.

It would have been possible to raise the roof again. The reactor and Camp Century, where it is installed, are young. The camp was completed in 1961 at a cost of $1 million for its hardware, plus a herculean effort by the Army and the other services. The reactor cost several million dollars more.

To operate the reactor further would require a costly overhaul of its nuclear fuel elements. However, the basic reason for the closedown is that Camp Century has largely served its purpose.

The camp is the prototype of a buried base, deriving its heat, light and electric power from nuclear energy. It is hardly detectable from the air. It was conceived when some strategic planners thought the United States might wish to establish such hidden bases in the Arctic. They could be equipped with missiles or other devices and could be linked by tunnels under the ice.

Machines used to clear Alpine passes of giant snowdrifts have proved highly effective in digging trenches that could then be roofed to form spacious tunnels. It was thus that the tunnel system of Camp Century was excavated.

Today such bases seem less necessary. Polaris submarines that can keep constantly on the move beneath the polar ice appear far more reliable. Furthermore, the only large ice-covered region in the North is Greenland, which is Danish territory. The Danes are very sensitive about American activities there.

Camp Century was a demonstration of what could be done. It will continue to be a base for scientific research in summer. For example, the Army Corps of Engineers there is hopeful that by this fall its thermal drills will have pierced the entire ice sheet.

The ice at Century is 5,000 feet thick. A few days ago the drilling passed 900 feet.

The drill brings up cores of undisturbed ice that tell of snowfalls, climate and air composition many centuries ago.

Two years ago, as a year-round base newly established in one of the most inhospitable regions of the world, Camp Century was a showplace. Last winter, for the first time, it was temporarily shut down. Henceforth it will probably operate only from spring to fall.

PEER SEES ESKIMOS STAYING PURE RACE

LONDON (Canadian Press)—Lord Tweedsmuir, a man with "a passion for the Canadian north," says the Eskimo, unlike the North American Indian, will always remain a saparate race.

"The Eskimos," he said, "the most cheerful of her majesty's subjects, think of themselves, quite simply, as 'the people' and the Arctic as 'the country' and all beyond it as being 'the outside'."

The present Lord Tweedsmuir, son of John Buchan, an author who became the first Lord Tweedsmuir and a Governor-General of Canada, first went to the Arctic to work in a Hudson's Bay Company trading post in 1938. When World War II started he joined the Canadian Army and since then has returned to the North many times as a prospector.

In a recent lecture here to the Royal Society for the Encouragement of the Arts, Lord Tweedsmuir said the white man was bringing change and improvement, to the North but "whatever sophistication comes to the Eskimo he will always have something of his original simplicity and sturdiness."

"There will probably always be an Eskimo who will be prepared to sit long hours at a seal hole, or carve a small figure of an animal for his own pleasure."

Until recently they were unable to write and thus they have no recorded history.

Greenland's Vast Ice Cover

Enough ice covers Greenland to envelop the entire world in a frozen sheath 17 feet thick, National Geographic says.

Icebreaker Jolts Through Arctic

By THEODORE SHABAD
The New York Times

ABOARD ICEBREAKER LENIN, June 23 — The atomic icebreaker Lenin traveled through the unusually smooth Barents Sea today toward a rendezvous with ice around Kara Gates, the strait south of Novaya Zemlya.

The 16,000-ton ship will carve a path for a caravan of timber carriers to Igaka, a lumber port, and break through ice that forms each spring at the mouth of the Yenisei River.

The icebreaker been averaging 17th to 18 knots, with the atomic propulsion plant of 44,000 horsepower running at only half its capacity.

Full power is being saved for the ice, which is reported thicker than usual in the Kara Sea this year. The forecast is that ice covers 20 to 30 per cent of the approaches to Kara Gates, with a virtually solid icefield beyond.

The clear skies that accompanied the Lenin on the first 12 hours of her journey out of Kala Gulf, on which her home port of Murmansk is situated, have given way to fog as she approached colder water. Although there is no other traffic in thes waters now, the Lenin has been following maritime rules and sounding her foghorn.

Two dozen foreign correspondents aboard the icebreaker visited her bridge today and saw a demonstration of navigational equipment. The radar scanner showed no blips. The depth recorder indicated 45 fathoms, typical of the shallow seas that border the Soviet Union's Arctic coast.

ABOARD ICEBREAKER LENIN, June 24—This Soviet atomic icebreaker on the way toward the mouth of the Yenisei River changed course during the night to avoid a heavy ice pack in the middle of the Kara Sea.

Instead of following a northeasterly course, Capt. Yuri S. Kuchiyev decided on the basis of aerial reconnaissance on a detour along the east coast of Novaya Zemlya that will permit greater speed.

Since the Lenin entered the Kara Sea through Kara Gates, a strait at the south end of Novaya Zemlya, her velocity has been cut to about 10 knots compared with up to 18 knots through the open water of the Barents Sea yesterday.

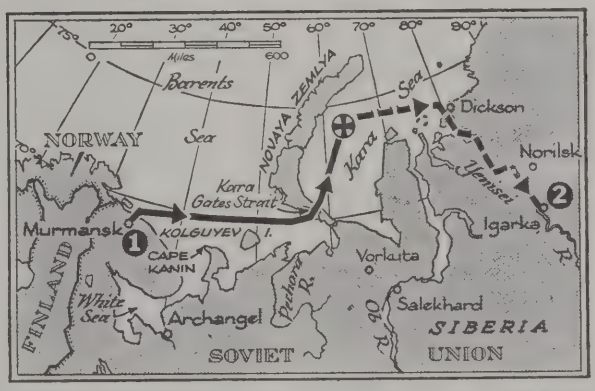
This icebreaker with two dozen foreign newsmen aboard encountered her first ice about 5 P.M. yesterday on the approaches to the strait.

The muddy weak shore ice driven northward from the Pechora River delta presented no major obstacle. As the icebreakers moved through the ice floes, the ship's public address system announced "bear on starboard." Crew members raced to the rail and shouted "Hey Mishka," the Russian pet name for bear.

The present plan is for the Lenin to move north within sight of Novaya Zemlya, 10 to 20 miles away, then turn east on a straight course toward Dickson. This route, though longer, will reduce the distance the Lenin will travel through the most difficult ice.

The ship is carving a path for a caravan of timber carriers to Igaka, a lumber port, and breaking through ice that forms each spring at the mouth of the Yenisei River.

The Lenin clearing a channel through the Arctic waters



The New York Times June 26, 1964

The route of the Soviet icebreaker Lenin (cross) from Murmansk (1) through the Kara Sea to Igarka (2).

ABOARD THE ICEBREAKER LENIN at sea, June 25—An atomic icebreaker smashing at 10 knots through three-foot-thick Kara Sea ice off the Soviet coast is a cross between a bucking bronco and a jolting streetcar.

In a running start through occasional stretches of open water, the combined 44,000 shaft-horsepower of her three screws drives the 16,000-ton Lenin onto huge ice floes, tilting ice blocks at crazy angles along her 2-inch-thick steel hull and causing geysers of spray to erupt to the height of the main deck.

The ice crunches, opening cracks for hundreds of feet on both sides of the ship as her sturdy frame shudders. Then another serene pool, followed by a crunch and a shudder.

Experienced ocean voyagers aboard the icebreaker sense none of the rolling and pitching usually associated with sea travel. Instead, one has a feeling of moving over a rough road in a vehicle with springs.

"A cart with a square wheel," was the way one newcomer to this icebreaker described it.

The Lenin, which has been shepherding freighters along the Soviet Union's northern coast since 1960, is starting her fifth Arctic navigation season with 20 foreign correspondents aboard.

Whether intentional or not, the publicity surrounding this voyage of the atomic icebreaker coincides with the demonstration trip of the Savannah, the United States nuclear merchant ship, to Europe.

The Savannah is often mentioned on the Lenin. The icebreaker's 8,000-book library which is run by the ship's laundress in her spare time, contains a book on "Nuclear Ship Propulsion" by Holmes F. Crouch, the nuclear-engineering specialist of the Northrop Corporation of Hawthorne, Calif. The book is based almost entirely on Savannah reactor technology.

When, in a meeting between the visiting correspondents and the crew, it was brought out that many aboard the Lenin worked six months a year and were off six months, the crew members asked:

"And how much vacation does the Savannah's crew get?"

The questioners had to be content with the explanation that labor unions aboard the Savannah were "strong."

The correspondents are being given the run of the Lenin, and more. Yesterday, one of her two helicopters provided rides for an aerial view of the icebreaker plowing through the ice.

Today, Capt. Yuri S. Kuchiyev stopped the ship, lowered the starboard stairway and deposited the correspondents on the ice at Lat. 74 degrees N., Long. 63 degrees 30 minutes E.

Then, for the benefit of photographers, the Lenin made a few passes at high speed close to the shivering viewers, who were accompanied by an armed escort to guard against bears.

When the newsmen, wet and cold, finally asked permission to go back to the warmth and comfort aboard, a precariously swaying rope ladder was dropped to them.

Remote Post Is Directing Ships As Soviet Arctic Traffic Opens

By THEODORE SHABAD
The New York Times

DICKSON, U.S.S.R., June 27 —A stark-looking, two-story building on this desolate island off the northern coast of Siberia is the nerve center of summer shipping operations getting under way along the Arctic seaboard of the Soviet Union.

The building, the Maritime Operations Headquarters, houses a round-the-clock staff that controls ship traffic in the entire western sector of the Soviet Arctic west of Long. 145 degrees E.

Eastern - sector operations, east of the demarcation line, are controlled from similar headquarters at Pevek, an Arctic supply port in northeastern Siberia.

In the second-floor map room of the Dickson control center, Capt. Bronislaw S. Mainagashev, the center's director, was explaining the work to a group of 20 foreign correspondents stationed in the Soviet Union.

The correspondents had been airlifted to Dickson by helicopter from the atom-powered icebreaker the Lenin, standing offshore. They had accompanied the 16,000-ton icebreaker from her home port at Murmansk on the first voyage of the season through the frozen Kara Sea, and were in this Arctic base for a 12-hour stopover before returning by air to Moscow.

Pointing to a huge map of the Soviet Arctic spread over a table in the middle of the room, Capt. Mainagashev said:

"On this map we chart ice conditions reported to us by four reconnaissance planes at our disposal. As you can see, there are only isolated patches of open water at this time of year."

The map was covered with different shades of brown, the lightest shade indicating loose, drifting ice and the darkest solid ice fields, with only a few small open-water areas colored blue.

Captain Mainagashev said that the planes, flying daily eight-hour sorties of 1,500 miles each, were able to cover the entire western sector once every 10 days. In the winter, when navigation halts, ice conditions are surveyed on a monthly basis, mainly for forecasting purposes.

On the basis of information about the sea ice, the Maritime Operations Headquarters makes course recommendations to icebreakers shepherding freighters along the Arctic Sea. board. It was on the basis of such advice that the Lenin last week traveled north along the east coast of Novaya Zemlya and then east along the 74th parallel to avoid a heavy ice pack sighted by a survey plane in the middle Kara Sea.

The ice reports are transmitted to ships by radio or are dropped from the planes.

Another map of the Arctic on the wall is used to keep track of all aerial and maritime traffic. It showed the whereabouts of reconnaissance planes, icebreakers and freighters. The Lenin, marked with a red-and-white paper flag off Dickson, was the only ship in the ice-covered seas.

The only other icebreaker on the map was the Leningrad, on special assignment in Franz Josef Land. Her sister ship, the Moskva, stationed in Far Eastern waters, was preparing to bring a caravan of freighters through the Bering Strait westward.

Plans were for the Lenin to travel eastward toward a rendezvous with the westbound caravan.

Captain Mainagashev, who was appointed traffic-control officers of the western Arctic last year, said that he had arrived at Dickson a week ago and that he would remain at his post until the season ends, in November. The tall, 38-year-old captain, wearing a rakishly trimmed moustache, said he had spent almost 20 years at sea, the last seven years as a freighter captain navigating in the Arctic.

A native of Novosibirsk, he is a member of the Khakass nationality, an indigenous people of southern Siberia.

The Soviet Union has been developing the Arctic route since late in the nineteen-thirties to supply mining centers and other outposts along Siberia's north coast, and to ease the load on the trans-Siberian railroad by diverting part of the east-west traffic to shipping.

The northern sea route between the ports of European Russia and Vladivostok is 6,000 to 7,000 miles, half the distance around southern Asia through the Suez Canal, and can be covered in three to four weeks.

Icebreaker Reaches Yenisei Estuary

By THEODORE SHABAD
The New York Times

ABOARD THE ICEBREAKER LENIN, at Sea, June 26 — This Soviet atomic icebreaker reached the estuary of the Yenisei River in northern Siberia today on the fifth day out of her home port of Murmansk.

Twenty Soviet foreign correspondents who accompanied the ship on the first voyage of her fifth Arctic navigation season are to be transferred from the Lenin by helicopter to Dickson, an Arctic port at the mouth of the Yenisei. Dickson is also the operation center for traffic along the western sector of the Northern Sea route during the four to five month summer season.

The Lenin's mission was to survey ice conditions in the Kara Sea, carve a preliminary path through the ice and cut through the ice block at the mouth of the Yenisei.

The icebreaker will then turn back to meet a caravan of two smaller icebreakers, the Krasin and Kapitan Melekhov, and three freighters, helping them through the rougher spots of the Kara Sea ice, which in some places is up to six feet thick.

The freighters are headed for Dudinka, the Yenisei River port of Norilsk, a major copper nickel mining center and Igarka, a lumber port where sawn wood has been piled all winter waiting for export.

Her Yenisei mission completed, the Lenin will head northeastward along the coast of the Taimyr Peninsula to open up the easterly sector of northern route.

Correspondents will be removed by helicopter because Dickson's port is too shallow for the icebreaker.

Dickson has coal bunkering and repair facilities for Arctic shipping, which is still icebound. The season opens in mid-July.

Since the Soviet completed its first atomic icebreaker in 1959, Soviet maritime authorities have been trying to lengthen the Arctic season by using the Lenin in the last half of June and early July. Ice conditions at this time often have been beyond the capacity of conventional icebreakers.

The New York Times June 27, 1964
Soviet icebreaker nears Yenisei River Estuary (cross)

TOLERANCE TO COLD MAY BE CONGENITAL

Eskimos and Arctic Indians show above normal capability to keep their hands warm in the cold even after living a sedentary life in a temperate climate for several months, according to studies at the Arctic Aeromedical Laboratory, Fort Wainwright, Alaska.

Thus, the ability of these natives to withstand the cold seems to be more than seasonal acclimatization. It may be a genetically determined adaptation to cold—the result of natural selection over several hundreds of years.

The ability of the northern natives to withstand hand cooling has been known for some years. The laboratory work showed that the Indians were able to maintain higher rates of blood flow to their fingers during standardized cooling tests than were control-subjects. Thus the warmer fingers result from the greater amount of heat that is pumped to them from the trunk of the body through the bloodstream.

Three possibilities could account for this:

Either the northern natives have greater numbers of blood vessels in their fingers, or there are fewer nervous impulses traveling to their fingers restricting the size of the blood vessels or they produce more body heat, that is, have higher metabolic rates, so that more heat is pumped to the surface.

Soviet Sets Up New Station For Study on Arctic Floe

The New York Times

MOSCOW, May 12 — Soviet scientists have completed the annual relocation and provisioning of their Arctic research stations on drifting floes.

A new station, named North Pole 13, has been established; the crew has been changed on a second station, North Pole 12, and a third station, North Pole 10, has been evacuated.

The first Soviet floe station floated southward along the east coast of Greenland in 1937-38. Since 1954, the program has been pursued continuously.

The new station has been set up at Lat. 73 degrees 53 minutes N., Long. 166 degrees 17 minutes W. by planes based at Cape Schmidt on the north Siberian coast. Its 20-man crew is headed by Arkady Bizuyev, a geophysicist.

Power for Far North

Moscow, March 26th (Reuters) —The Ust-Khantai hydraulic power station, the first in the world to be built in the permafrost zone beyond the 68th Parallel, was under construction in the Yenisei Tributary, Tass reported today.

ICEBREAKER FINDS ARCTIC PORT DRAB

First Foreign Newsmen at Isolated Soviet Town

By THEODORE SHABAD
The New York Times

MOSCOW, June 28 — "We are having an unusually late spring this year," said the town official of Dickson, a key Soviet Arctic supply base and communication center, pointing to the grimy remains of huge snow drifts reaching nearly to the roofs of wooden two-story buildings.

The Communist party secretary, the port director, the construction chief and other officials of the north Siberian base of 5,000 people had come to the island airfield to welcome a group of 20 Soviet and foreign correspondents as they were being ferried by helicopter Friday from the atomic icebreaker Lenin.

The Lenin, with the newsmen aboard, had just completed a five-day 1,200-mile voyage from her home port of Murmansk on her first icebreaking mission of this year's summer navigation season, which lasts four to five months.

The unusual opportunity to ride the icebreaker through the frozen Kara Sea and to visit isolated Dickson had been provided by the Soviet Ministry of Merchant Marine and the State Committee of Cultural Relations with Foreign Countries.

A 12-hour stopover had been planned for correspondents in Dickson, the first such group to visit the Arctic base in its 50-year history, before their return to Moscow by air today.

For the brief stay the correspondents were put up at a simple guest house used by Arctic fliers and reputed to be the northernmost hotel in the Soviet Union if not in the world. Dickson is situated at Lat. 73 degrees 30 minutes N., which is farther north than the northern coast of Alaska.

The two-story clapboard building, its outer walls covered with political slogans and production charts has 30 rooms, ranging from a few singles to 10-bed dormitories, a common wash room equipped with four sinks and a restaurant with a self-service check room.

It was 7 P.M. and across from the hotel about a dozen persons wearing sturdy Arctic clothes were waiting before a social community center to see a movie.

Children played on elevated wooden sidewalks that provided a dry footing or posed willingly for photographers.

In the light of the continuous Arctic summer day newsmen were taken on a quick tour of the island settlement with a population of 600, by far the smaller of Dickson's two sections.

There was no opportunity to visit the mainland settlement across a two-mile strait where most of the population is employed in the port, in construction and trade.

On the island, despite the late hour, about a dozen persons were busy in a building housing the radio station and weather bureau, which make up a vital communication center for the entire western sector of the Soviet Arctic.

In the Maritime Traffic Headquarters little paper flags on a huge map of the Soviet Arctic showed the whereabouts of ice reconnaissance planes, icebreakers and freighters.

At midnight the people of Dickson, like most dwellers of the Arctic, were still taking advantage of the three-month summer day by walking along wooden sidewalks or gathering in groups before their homes.

Archangel, Active Soviet Port, Aims to Be Bigger and Busier

Icebreakers Extend Harbor's Season—Ambitious Plans for New Housing Drawn

By THEODORE SHABAD
The New York Times

ARCHANGEL, U.S.S.R., June 27—This sprawling lumber metropolis of northern European Russia presents two faces to the visitor, depending on where he comes from.

If he flies a modern 400-mile-an-hour Ilyushin-18 turboprop airliner from bright, sunny Moscow, the newcomer is likely to find Archangel a raw backwater town of wooden buildings, wooden sidewalks and even wooden roads.

If, on the other hand, as happened to a group of correspondents this week, the visitor travels here from the desolate fog-shrouded Soviet Arctic outpost of Dickson, on an eight-hour flight aboard an aging Ilyushin - 14 piston-engined plane of the Polar Aviation Service, Archangel will seem to be a warm, vibrant place pulsating with activity.

As the Soviet Union's leading sawmilling and wood-processing center, Archangel is the outlet for a region that accounts for more than half of the country's exports of timber and wood products.

The city is impressive when viewed from a harbor launch on the Northern Dvina River, which with its delta arms makes the busy arteries of the Archangel metropolitan district. Although buses and streetcars serve parts of the city, transportation between the scattered urban settlements and suburbs is provided mainly by 15 boat lines that take Archangel residents to and from work, on shopping trips and on weekend excursions.

The New York Times
Cross denotes Archangel

The 25-mile waterfront extends from the southern suburb of Uima, where logs floated down the Northern Dvina River are sawed into boards, past the central city with its administrative buildings and smoking chimneys, to the outer port of Ekonomiya.

Shipyards alternate with sawmills, paper and pulp factories and other industrial enterprises. The gleaming white steamer Vatslav Vorovsky, named for an early Soviet diplomat who was murdered in Lausanne in 1923, is about to lift anchor for Murmansk. A former Liberty ship, now under the Greek flag, is taking on a cargo of sawn timber. Old sidewheelers, serving the river route upstream to Kotlas, are moored along the quay.

Fyodor V. Vinogradov, a party secretary of Archangel Province, who conducted newsmen on a quick tour of the city, said that 800 ships visited the port last year during the navigation season.

The season has gradually been extended from a normal six or seven months to nine or 10 months with the help of icebreakers. Next year, it is hoped, enough icebreakers will be on hand to insure year-round access through the White Sea.

In contrast to Archangel's highly favorable geographical situation as the seaward outlet of a rich lumbering region of northern Russian forest lands, the city's site is unsuited to urban development.

The city's 300,000 inhabitants have two million square meters of housing space, according to official figures. This works out to 68 square feet for each person. In the next six years an additional million square meters of housing is to be built. Assuming an increase of population and the razing of some decrepit wooden shacks, the average Archangel resident should have 82-square feet of housing at his disposal by 1969.

The development planners call the public bath and steam laundry situation "especially unsatisfactory." They propose the building of baths with an hourly capacity of 400 persons, and laundries able to handle 8,800 pounds of clothing a shift.

Up-to-Date Prospectors Busy in Yukon

By the Associated Press

Vancouver, B.C.

The old-time prospector is still around—he just has more modern equipment, better training, and sometimes a university degree.

He is also airborne and does photo and geophysical surveys.

He still lives in the mountains and camps out at night, but because of his specialized training can find deposits of important ore that his father might have missed.

He may even take a chemistry set along to test different types of rock, part of the science called geochemistry.

"We still need men of his caliber to do the work and the majority of discoveries being made now in British Columbia have been found by prospectors," says Tom Elliot, manager of the British Columbia and Yukon Chamber of Mines for the last 30 years.

The government also realizes their importance and each year both the British Columbia and federal governments grubstake men who will work in the field as prospectors.

The provincial government this year will give about 50 men up to $700 each to encourage young men to get into the exploration field.

In the Yukon, the Department of Northern Affairs and Natural Resources will grubstake 20 two-man teams up to $2,000 to prospect. The higher grubstake is given to cover increased transportation costs and flights into remote areas.

The money is an outright gift from both governments to the prospectors.

Argentine-British Stamp War

The Argentine government is using stamps in a long-standing dispute with Great Britain over the sovereignty of

Argentina's three new map stamps and first-day postmark lay claim to Antarctic islands.

an assorted group of islands in the South Atlantic and a slice of Antarctica. The three latest stamps, all printed in ochre, light and dark blue, were released on Feb. 22, to mark the "60th anniversary of Argentine Antarctica."

The 2-peso shows maps of South Georgia, South Orkneys and the South Sandwich Group; the 4p—a double-size stamp—shows the tip of South America, half of Antarctica and all of the disputed insular specks, and the 18p depicts a super-size map of the Islas Malvinas, as the Argentenians call the Falkland Islands. All of them have an Argentinian flag to suggest possession.

The Desire is the first sailing ship reported to have put into the islands in 1592 which almost a century later were called the Falklands, in honor of Lucius Carey, Viscount Falkland. From then until 1829, several other explorers arrived, took a quick look and promptly left the bleak twin islands. In that year, the Republic of Buenos Aires decided to include them as part of Spanish territory which it acquired upon attaining independence from Madrid. In 1831, the Argentinians captured a United States ship and crew, which immediately brought a Naval party into the picture.

The United States rescued the men, destroyed the Buenos Aires settlement and declared the islands to be free of any rule, to be used by any sailors who chanced to require their haven. Two years later, however, the British declared rights of possession of the strength of discovery and sent a handful of colonial agents to inforce them.

Argentina regularly protested the "occupation," but Britain ignored them, and to emphasize her ownership, began operating a postal service and in 1878, issued distinctive stamps for the Falklands. Few letters were mailed, but stamps were produced with regular frequency not so much to frank them, but to enjoy profits from sales to collectors.

Shortly after the late Adm. Richard E. Byrd's trips suggested that Antarctica held future promise, Argentina began increasing her protests. In 1935, she issued stamps showing a South American map, coloring the Islas Malvinas as Argentine territory. Britain objected to this; Peru and Chile also complained, saying the map's boundary lines included land belonging to them. The stamps were withdrawn and redesigned to eliminate all borders, but still showing the Falklands in color.

In 1944, Britain took contemporary Falkland stamps and overprinted them "for use" in South Georgia, the South Shetlands, the South Orkneys and Grahamland. Then, two year later, it issued distinctive designs for these dependencies.

It was during the Peron administration that Argentina's stamp war was stepped up. Communications Minister Nicollini was instructed to accept no mail from the Falklands unless franked with Argentine stamps.

He also was instructed to issue several map stamps, not only to claim possession of the Falklands, but also the other islands. More recently, meteorological stations and other outposts were manned by Argentine officers in the Antarctic Service. Five of these—not already occupied by the British—were given postal facilities with distinctive "Antartida" postmarks.

Just what action Britain can and will take other than regarding the new Argentinean stamps as only a postal paper threat, is problematical. Theoretically, they could lodge a diplomatic protest that might force the stamp's withdrawal from use. But it is more likely that Her Majesty's Government will simply look upon them with characteristic aloofness.

New York Herald Tribune

GREENLAND. Four engraved King Frederick portrait stamps, issued on the occasion of his 65th birthday.

Scott's Hut to Be Restored

AUCKLAND, New Zealand (Canadian Press) — The hut used by Robert Scott's polar expedition of 1901 to 1904 at Hut Point, McMurdo Sound, is to be restored and preserved. A team from New Zealand will repair damage caused by storms of the last half century. Huts used by the Shackleton expedition of 1907 to 1909 and by Scott in 1909 to 1912 already have been preserved.

NAVY TO HELP OBTAIN ANTARCTIC CACHETS

WASHINGTON — Stamp collectors interested in obtaining covers postmarked in Navy post offices at the South Pole and Byrd Stations in Antarctica, must make their requests before Sept. 1, 1964.

Covers cancelled on Navy ships participating in Operation Deep Freeze during the 1964-65 Antarctic season may also be requested, the Armed Forces Press Service reports. Only one cover per person will be accepted for cancellation at Byrd and South Pole Stations. Ships will accept only three covers per person.

Postmarks from Byrd and South Pole Stations may be obtained by sending two stamped, self-addressed envelopes or an International Reply Coupon for each cover requested to: Deep Freeze Philatelic Mail, U.S. Naval Construction, Battalion Center, Davisville, R.I. 02852.

One cover will be sent to Byrd Station and the other to the South Pole for postmarking. If a cancellation from only one station is desired, the word "Byrd" or "Pole" should be written on the lowerr left corner ofthe cover.

For postmarks from participating ships, philatelists should send not more than three stamped self-addressed envelopes or sufficient International reply Coupons to: Deep Freeze Philatelic Mail in care of the ship from which postmark is desired at the fleet post office address.

The covers will probably be postmarked during the Antarctic winter and returned between October, 1965, and April, 1966.

Fire at U.S. Base

CHRISTCHURCH, N. Z., March 6 (AP).—A shed containing scientific equipment was destroyed by fire yesterday at the joint U.S.-New Zealand Antarctic base at Hallett Station.

FRENCH ANTARCTIC TERRITORIES. Three stamps, showing penguins mark the "International Year of Quiet Sun".

LAUGE KOCH DIES; EXPLORER WAS 71

Danish Geologist Led Many Expeditions to Greenland

COPENHAGEN, June 6 (Reuters) — Dr. Lauge Koch, the Danish polar explorer and geologist, died here yesterday at the age of 71.

Led Greenland Expedition

In 1931, Dr. Koch led the largest expedition that had ever been sent from Denmark to Greenland.

He headed expeditions for geogical, geographical and botanical research in polar and subpolar regions. Beginning in 1912, he penetrated western, northern and eastern Greenland.

The 1931 expedition completed an investigation of the coast between Scoresby Sound, which is 600 miles north of Angmagslik, and Denmark Harbor, about 450 miles north of that. A survey was also made of the mineral resources of eastern Greenland.

Dr. Koch returned from the expedition with a remarkable collection of Stegecephali fossils. He described them as having been four-legged creatures, between fish and toads in the evolutionary scale.

Earlier exploits by the Danish explorer include his connection with what was called the north around Greenland expedition, from 1920 to 1923 and his leadership of government expeditions to east Greenland in 1926-27, 1929 and 1930.

Dr. Koch's mineralogical discoveries included coal seams of good quality, a pure lead deposit that was estimated to be of a million tons and radioactive slate layers, indicating uranium in quantities that could be mined.

He was one of the first explorers to use the airplane. He was thus able to establish that the inland slopes of the east Greenland mountains are sheathed with impenetrable ice in summer and winter. He discovered that only the rocky ridges and peaks projected through the icecap.

The National Academy of Sciences awarded Dr. Koch the Mary Clark Thompson Medal and honorarium "for the most important services to geology and paleontology."

In the citation accompanying the award, it was stated that "the work of Dr. Koch is almost as though a single man had taken either the northern or southern half of the whole Appalachian geosyncline and engineered an elaborate study of it."

In 1930, Dr. Koch was awarded the Charles P. Daily Medal by the American Geographical Society.

He was a member of the New York Explorers Club and had lectured at many American universities.

Armand Bombardier, 56, Dead; Invented Snowmobile in 1937

SHERBROOKE, Que., Feb. 19 (Canadian Press) — Armand Bombardier, who worked for nearly 12 years to build an economical vehicle that would go anywhere and produced the world-famous Snowmobile, died in a hospital last night. His age was 56.

Mr. Bombardier was born and lived all his life in the nearby village of Valcourt, where his Bombardier Snowmobile Company turned out more than 13,000 Snowmobiles between 1937 and 1963.

He never stopped experimenting, even after the Snowmobile was perfected. Later ideas led to the development of the Skidoo, the Penguin and a number of other vehicles designed to carry men across glaciers, swamps, muskeg and Arctic permafrost.

His versatile vehicles see daily service around the world as ambulances, hearses, pulpwood haulers, taxis and pleasure craft. The city of Montreal alone uses 400 as snowplows.

About 200 are used by companies servicing the distant early warning line (DEW) in the Canadian Arctic, and a fleet of 16 in Jasper, Alberta, carry thousands of sightseers annually over the great Athabasca Glacier.

Plans for an economical vehicle that would "go anywhere" began taking shape in the winter of 1926, when Mr. Bombardier was operating a small garage in Valcourt. For more than a decade he repaired cars in summer and worked on his project in winter.

The first commercial Snowmobile, built in 1937, looked much like today's Snowmobiles —a cabin on tracks. The first 12-passenger Snowmobile rolled off the assembly line in 1947 and the Muskeg tractor, a fully-tracked vehicle designed to roll over muskeg and permafrost, followed in 1959.

Sir Vivian Fuchs used one in his dash across the South Pole in 1957. He found it so reliable in 60-below-zero temperatures that he ordered six more in recent years.

The 230-pound Skidoo, one of Mr. Bombardier's most popular inventions, came out in 1959. Only 300 were delivered that year, but orders in 1963 totaled more than 6,000. An entirely new winter sport has grown up around the tiny scooter, which has been exported throughout the world.

The latest of Mr. Bombardier's ideas was a machine for the forest industry called a "feller-buncher," which saws down trees and carries them—up to 20 at a time—to the mill.

Mr. Bombardier's survivors include three brothers, Raymond, in charge of sales and service for the Snowmobile company, Leopold, in charge of tooling, and Gerard, the production manager.

Skier Dies of Heart Attack On Expedition to North Pole

OTTAWA, March 23 (AP)— A member of a Norwegian ski expedition that hopes to reach the North Pole on foot died yesterday of a heart attack.

He was Torstein Raaby, 44 years old, who in 1947 was a member of the South Pacific Kon-Tiki raft expedition.

Canadian Northern Affairs Minister Arthur Laing announced Mr. Raaby's death today. He said Mr. Raaby had died at Alert, a communications and weather station being used by the expedition as a jumpoff point.

The expedition, with 11 men started out on its Arctic crossing last week but after 12 miles had to return to Alert for sled repairs.

Mr. Raaby was a radio operator for Thor Hyerdahl's Kon-Tiki expedition that drifted 4,300 miles in 101 days from Peru across the Pacific.

Huskies Stranded in Europe May Get to Antarctic Yet

COPENHAGEN, Denmark (AP) — Twenty huskies from Greenland were stranded in Copenhagen last August, when a Swiss Antarctic Expedition that expected to take them to the South Pole went bankrupt. But they may get to their destination yet.

After months of haggling over their food bill of thousands of francs at the Copenhagen zoo, and with the Danish Government threatening to have them destroyed unless the sum was paid, the animals were handed on to a Norwegian Antarctic Expedition.

Swiss and Danish animal societies contributed to their food bill, but individual dog-lovers who offered them homes had to be discouraged.

A spokesman said: "Huskies are almost wild animals and must be handled by experts. Furthermore, the sort of climate they are used to can only be found on the heights of the Jungfraujoch."

FRANK H. WASKEY, ALASKAN PIONEER

First Delegate to Congress Dies—Was Prospector

The New York Times

OAKVILLE, Wash., Jan. 26— Frank Hinman Waskey, first Alaskan Delegate to Congress, former prospector and fur trader, died yesterday at the age of 88.

Mr. Washey lived in the Alaska northland until 1955, and always called himself a miner. He devoted much of his later years to buying furs and dealing in curios.

He was born in Lake City, Wabasha County, Minn. In the gold-rush days of 1898, he pushed on to Alaska and started prospecting at Turnagin Arm, south of Anchorage, and later at Nome.

In 1905 he struck "pay" on the Chestnut claim, adjoining the famous Bessie Bench. Later he hit two other bonanzas. In the nineteen-forties he discovered a cinnabar (ore of mercury) mine.

A Democrat, he was elected to the 59th Congress as the first Delegate from Alaska, serving from Aug. 14, 1906, to March 3, 1907.

In campaigning he became known as "the prince of mushers." Afoot, with a miner's pack on back, he would pass across snow-topped mountains and glacial streams, stopping at roadhouses, mine camps, sluice boxes and mess tents. He was elected on a miners' ticket.

As Delegate he strove unsuccessfully to get Congress to provide the Territory of Alaska with a legislature and home rule. Large business interests, who were trying to take over Alaskan resources, opposed such a step.

Mr. Waskey was not a candidate for renomination in 1907. He became a leading citizen, head of a mining concern and director of a bank and publishing company in Nome.

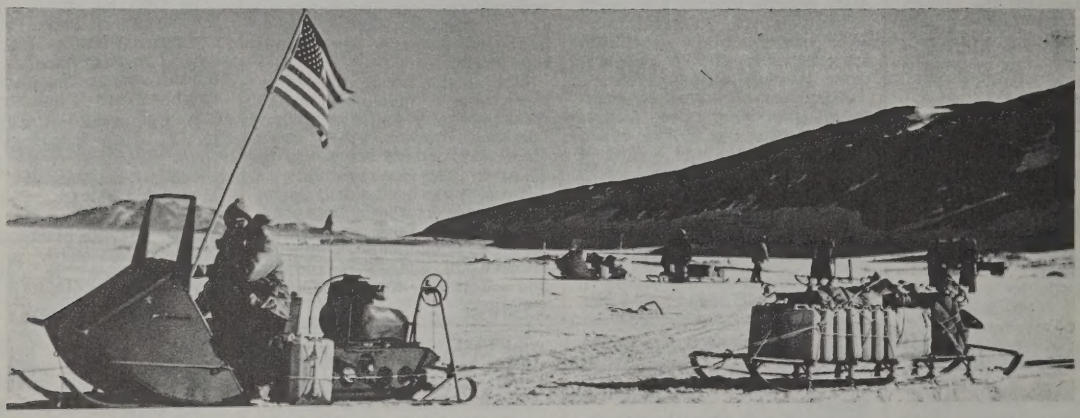
He continued to prospect at intervals until 1955. By dogsled he roved throughout Alaska, especially in the belt between the Yukon and Kuskowim rivers, trading with Eskimos for furs and curios.

ARCTIC PIONEER

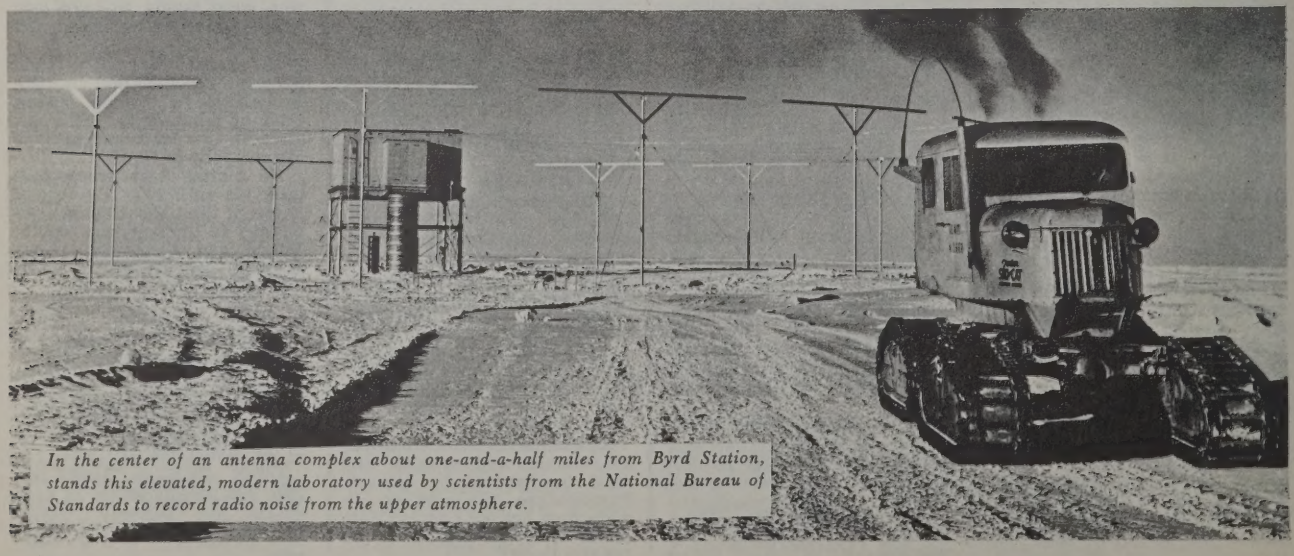
FAIRBANKS, Alaska (AP) — George W. Taylor, 71, a former game warden who logged more than 10,000 miles by dog team in the arctic, has died here.

Taylor came to Alaska in 1897. His parents settled in Ketchikan and Skagway, where they operated a jewelry business.

Hallett Station



Motor toboggans are in ever-increasing use by research parties in the field.



In the center of an antenna complex about one-and-a-half miles from Byrd Station, stands this elevated, modern laboratory used by scientists from the National Bureau of Standards to record radio noise from the upper atmosphere.